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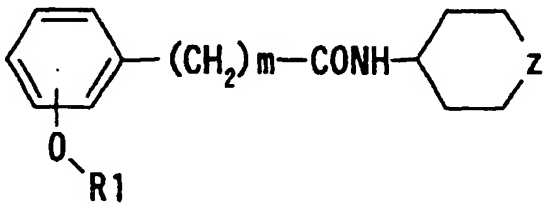
[続葉有]

(54) Title: CHEMOKINE RECEPTOR ANTAGONIST

(54) 発明の名称: ケモカイン受容体拮抗化合物



(1)

(2)

(57) Abstract: A compound represented by the formula (1) wherein m is 1 or 2; R1 represents linear or branched C_{3-8} (un)saturated alkyl, C_{5-8} cycloalkyl, C_{5-8} cycloalkenyl, C_{1-6} alkyl, C_{3-8} cycloalkyl, C_{5-8} cycloalkyl substituted by phenyl, trifluorobutyl, perhydronaphthyl, -(CH_2)-$C(CH_3)$=CH-Ph, cinnamyl, or other substituent; and Z represents, e.g., a group represented by the formula (2) (wherein R19 represents C_{3-10} cycloalkyl or C_{3-10} cycloalkenyl). The compound has a high affinity for chemokine receptors, which play an important role in eosinophilic infiltration, and inhibits the function of chemokine receptors. The compound is hence usable for treatments for or prevention of human and animal diseases in which chemokine receptors participate, such as bronchial asthma and allergic diseases including allergic conjunctivitis.

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(84) 指定国 (広域): ARIPO 特許 (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), ユーラシア特許 (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), ヨーロッパ特許 (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI 特許 (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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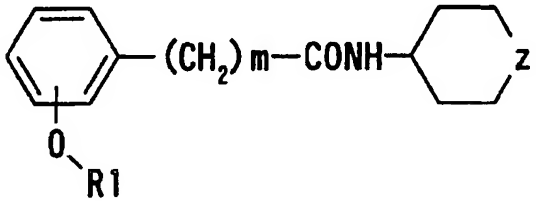
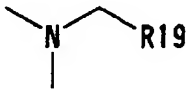
(57) 要約:

式



{式中mは１または２を示し、Ｒ1は・炭素原子数３～８個の直鎖状、分岐鎖状の飽和または不飽和のアルキル基、・炭素原子数５～８のシクロアルキル基、・炭素原子数５～８のシクロアルケニル基、・炭素原子数１～６のアルキル基、炭素原子数３～８のシクロアルキル基またはフェニル基で置換された炭素原子数５～８のシクロアルキル基、・トリフルオロブチル基、・ペルヒドロナフチル基、
・-(CH_2)-C(CH_3)=CH-Ph で示される基、・シンナミル基などの置換基を示し、
Ｚは式



(式中Ｒ19は炭素原子数３～１０のシクロアルキル基または炭素原子数３～１０のシクロアルケニル基を示す。) で示される基などを示す。} で表される化合物は、好酸球浸潤において重要な働きを担っているケモカイン受容体に対して高い親和性を有し、ケモカイン受容体の作用を阻害することにより、ヒト及び動物におけるケモカインの受容体が関わる疾患、例えば気管支喘息やアレルギー性結膜炎をはじめとするアレルギー性疾患に対する治療又は予防のために使用することができる。

明細書

ケモカイン受容体拮抗化合物

技術分野

本発明は、白血球遊走因子であるケモカインの受容体に対する拮抗作用を有する化合物に関する。

背景技術

ケモカインは主に好中球や単球に作用する因子として発見され、主に炎症性疾患における役割が研究されてきた。しかし、最近発見された新しいケモカインは、リンパ球や樹状細胞を主な標的細胞とすることが明らかになった。これらのケモカインは免疫系組織の形成、恒常性維持、免疫応答、などの役割をはたすと考えられている。さらに、ケモカインは炎症や免疫応答での細胞遊走にとどまらず、発生、分化、ウイルス感染、癌などのさまざまな分野でも重要な役割をはたしていることがわかってきた。

ケモカインの一種であるEotaxinは強い好酸球走化性を示し、骨髄から末梢血への好酸球の動員に作用するだけでなく、好酸球脱顆粒・活性酵素産生などのような好酸球の活性化を促進する。また、好酸球の接着分子受容体CD11bの発現や血管内皮細胞の接着分子ICAM-1、VCAM-1の発現を誘導し、好酸球の接着を増強させる。

一方、CCR3は好酸球よりクローニングされたG蛋白質共役型受容体であり、好酸球や好塩基球、Th2細胞に発現しており、Eotaxinと高い親和性を有するリガンドである。

したがって、EotaxinのCCR3への結合を特異的に阻害する物質は、気管支喘息やアレルギー性結膜炎をはじめとするアレルギー性疾患などに対する治療又は予防のための医薬品として有用であると考えられる。

ケモカイン受容体の機能を阻害する物質としてはＷＯ９８／０４５５４号明細書などに記載されているが、本発明の化合物は知られていない。

本発明は、ケモカイン受容体の機能を特異的に阻害する化合物の提供を目的とす

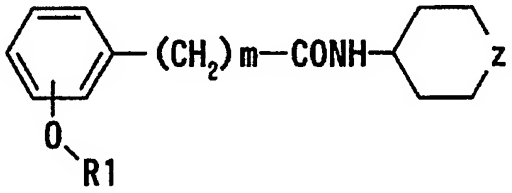
る。

発明の開示

本発明者らは、課題を解決するために種々検討した結果、ある種の化合物がケモカイン受容体の機能を特異的に阻害することを見出し本発明を完成した。

すなわち本発明は、

式



{式中mは１または２を示し、

R1は

・炭素原子数３～８個の直鎖状、分岐鎖状のアルキル基、

・炭素原子数３～８個の直鎖状、分岐鎖状のアルケニル基、

・炭素原子数５～８のシクロアルキル基、

・炭素原子数５～８のシクロアルケニル基、

・炭素原子数１～６のアルキル基、炭素原子数３～８のシクロアルキル基またはフェニル基で置換された炭素原子数５～８のシクロアルキル基、

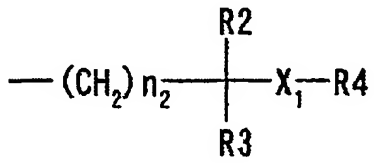
・トリフルオロブチル基、

・ペルヒドロナフチル基、

・$-CH_2-C(CH_3)=CH-Ph$ で示される基、

・シンナミル基

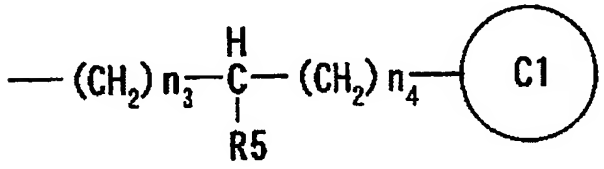
・式



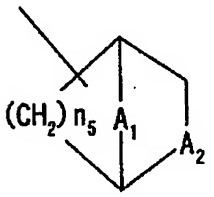
（式中、n_2は０～３の整数を示し、Ｒ2、Ｒ3はそれぞれ水素原子または炭素原子

数１～３のアルキル基を示し、Ｒ4はフェニル基、ナフチル基、炭素原子数１～４の直鎖状もしくは分岐鎖状のアルキル基または炭素原子数２～４の直鎖状もしくは分岐鎖状のアルケニル基を示し、X_1 は酸素原子、硫黄原子、カルボニル基またはカルボニルオキシ基を示す。）で示される基、

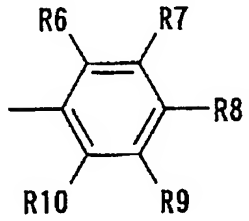
・式



（式中n_3およびn_4はそれぞれ０～３の整数を示し、Ｒ5は水素原子、炭素原子数１～４の直鎖状もしくは分岐鎖状のアルキル基、炭素原子数２～４の直鎖状もしくは分岐鎖状のアルケニル基、炭素原子数１～６のアルコキシ基、フェニル基、ハロゲンで置換されたフェニル基、または炭素原子数３～８のシクロアルキル基を示し、環Ｃ１は「無置換または炭素原子数１～３のアルキル基で１～３個置換された炭素原子数３～８のシクロアルキル基」、「炭素原子数５～８のシクロアルケニル基」、「無置換または炭素原子数１～３のアルコキシ基で置換されたナフチル基」、「アダマンチル基」、「式

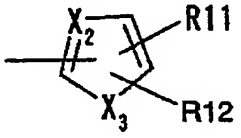


（式中、n_5は１または２を示し、A_1 はメチレン基または $-C(CH_3)_2-$ で示される基を示し、A_2 はメチレン基、エチレン基、ビニレン基またはメチルメチレン基を示す。）で示される基」、「式



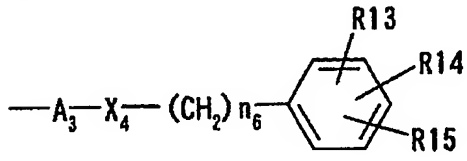
（Ｒ６～Ｒ10はそれぞれ水素原子、ハロゲン原子、炭素原子数１～６のアルキル基

、炭素原子数１～５のアルコキシ基、炭素原子数１～３のアルキルチオ基、トリフルオロメチル基、トリフルオロメチルオキシ基、ベンジル基、フェネチル基、スチリル基、フェノキシ基、ベンジルオキシ基、フェニル基または炭素原子数２～４のアルコキシカルボニル基を示す。）で示される基」または「式

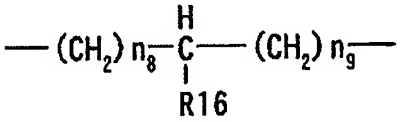


（式中、R11とR12はそれぞれ水素原子、炭素原子数１～３のアルキル基またはフェニル基を示し、X_2 は窒素原子または =CH- で示される基を示し、X_3 は酸素原子、硫黄原子または窒素原子を示す。）で示される基」で示される基、

・式

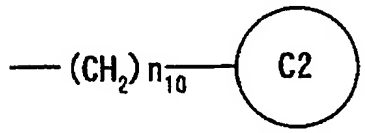


[式中、n_6 は１～３の整数を示し、X_4 は酸素原子または硫黄原子を示し、R13～R15はそれぞれ水素原子、ハロゲン原子、炭素原子数１～３のアルコキシ基または炭素原子数１～３のアルキル基を示し、A_3 は $-(CH_2)n_7-$ （式中n_7 は０～５の整数を示す。）で示される基、 $-CH_2-CH=CH-CH_2-$ で示される基または式

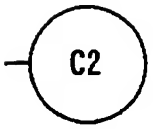


（式中、n_8、n_9はそれぞれ０または１を示し、R16は炭素原子数１～３のアルキル基または $-CH_2-O-CH_2-Ph$ で示される基を示す。）で示される基を示す。]で示される基、

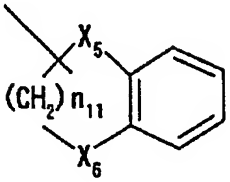
・式



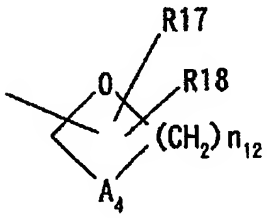
[式中、n_{10} は０～２の整数を示し、



は式

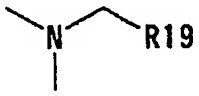


（式中、n_{11}は１または２を示し、X_5 およびX_6 はそれぞれメチレン基または酸素原子を示す。）で示される基、または式

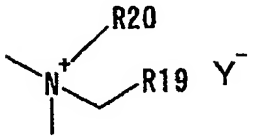


（式中、n_{12}は１～５の整数を示し、R17、R18はそれぞれ水素原子または炭素原子数１～３のアルキル基を示し、A_4 はメチレン基または酸素原子を示す。）]で示される基を示し、

Ｚは式



または式



（式中R19は炭素原子数３～１０のシクロアルキル基または炭素原子数３～１０のシクロアルケニル基を示し、R20は炭素原子数１～５のアルキル基を示し、Y^- は陰イオンを示す。）で示される基を示す。｝で表される化合物およびその医薬上許容される塩である。

本発明において、直鎖状、分岐鎖状のアルキル基とは、たとえばメチル基、エチ

ル基、n-プロピル基、イソプロピル基、n-ブチル基、イソブチル基、tert-ブチル基、n-ペンチル基、イソペンチル基、ネオペンチル基、tert-ペンチル基、n-ヘキシル基、n-ヘプチル基、n-オクチル基などの炭化水素基である。

本発明において、直鎖状、分岐鎖状のアルケニル基とは、たとえばビニル基、アリル基、イソプロペニル基、ブテニル基、イソブチレニル基、イソプレニル基などの炭化水素基である。

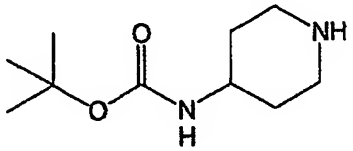
本発明においてシクロアルキル基とは、シクロプロピル基、シクロブチル基、シクロペンチル基、シクロヘキシル基、シクロヘプチル基、シクロオクチル基などの環状飽和炭化水素基である。

本発明においてシクロアルケニル基とは、シクロペンテニル基、シクロヘキセニル基、シクロヘキサジエニル基、シクロヘプテニル基、シクロオクテニル基などの環状不飽和炭化水素基である。

本発明においてアルコキシ基とはメトキシ基、エトキシ基、プロポキシ基、ブトキシ基、イソプロポキシ基、イソブトキシ基、sec-ブトキシ基、tert-ブトキシ基、ペンチルオキシ基、ヘキシルオキシ基、アリルオキシ基などの基である。

本発明で陰イオンとはハロゲン化物イオンなどのことであり、具体的には塩化物イオン、臭化物イオン、ヨウ化物イオン、メタンスルホネートイオン、モノメチルスルホネートイオンなどがあげられる。

本発明の化合物は、例えば以下に示す方法によって合成することができる。すなわち、下記式（a）

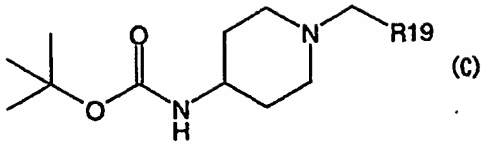


（a）

で表される化合物と下記式（b）

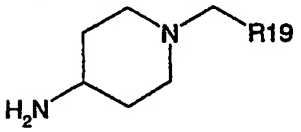
R19-CHO （b）

（式中、R19は前記と同義）で表される化合物を還元剤の存在下、還元的アルキル化反応を行い、下記式（c）



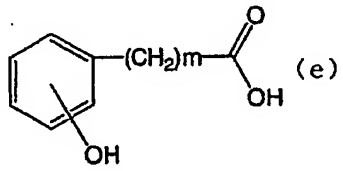
(c)

（式中、R19は前記と同義）で表される化合物を得、更に、鉱酸、有機酸処理などの通常用いられる方法により加水分解することにより、下記式（d）



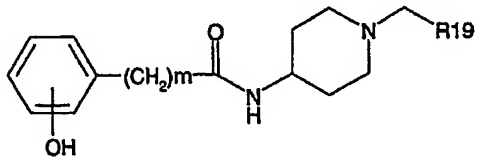
(d)

（式中、R19は前記と同義）で表される化合物もしくはそれらの塩とした後、下記式（e）



(e)

（式中、mは前記と同義）で表される化合物もしくはそれらの塩を用いてアミド結合を形成する通常の方法により縮合し、下記式（f）

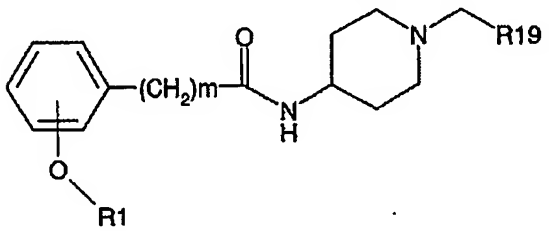


(f)

（式中、m、R19は前記と同義）で表される化合物を得、下記式（g）

R1-OH （g）

（式中、R1は前記と同義）で表される化合物と光延反応によりエーテル結合を形成することによって、下記式（h）



(h)

（式中、m、R1，R19は前記と同義）で表される本発明化合物を合成することができる。

また、上記式（h）で示される本発明の化合物は、上記式（f）で表される化合

物もしくはそれらの塩と、下記式（ｉ）

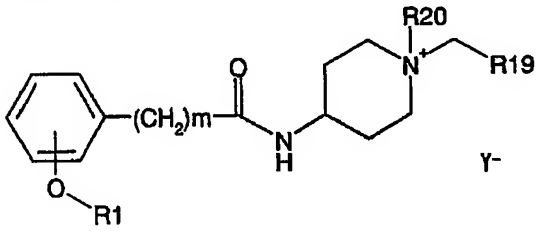
R1-L （ｉ）

（式中、R1は前記と同義であり、Ｌは脱離基を表す。ここで脱離基とは、例えば塩素原子、臭素原子、ヨウ素原子等のハロゲン原子、メタンスルホニルオキシ基、ｐ－トルエンスルホニルオキシ基等のスルホニルオキシ基などがあげられる）で表される化合物を塩基存在下反応させることによって合成することもできる。

更に、上記式（ｈ）で表される化合物と下記式（ｊ）

R20-Y （ｊ）

（式中、R20およびYは前記と同義）で表される化合物を反応させることによって下記式（ｋ）



（ｋ）

（式中、ｍ、R1，R19、R20は前記と同義）で表される本発明化合物を合成することができる。この際、ピペリジンの１位と４位にcis,transの異性体が生じるが、便宜上、低極性の化合物をcis体、高極性の化合物をtrans体と命名する。

本発明の化合物は、その置換の態様によって、光学異性体、ジアステレオ異性体、幾何異性体等の立体異性体が存在することがあるが、本発明の化合物はこれら全ての立体異性体及びそれらの混合物をも包含する。

上記反応で塩基を用いる場合の塩基としては例えば炭酸ナトリウム、炭酸カリウム、炭酸水素ナトリウム、炭酸水素カリウム、水酸化ナトリウム、ジムシルナトリウム、水素化ナトリウム、ナトリウムアミド、tert－ブチルカリウム等のアルカリ金属塩類、トリエチルアミン、ジイソプロピルアミン、ピロリジン、ピペリジン等のアミン類、酢酸ナトリウム、酢酸カリウム等を用いることができ、鉱酸とは例えば塩酸、臭化水素酸、ヨウ化水素酸、硝酸、硫酸等であり、有機酸とは例えば、酢酸、メタンスルホン酸、ｐ－トルエンスルホン酸、トリフルオロ酢酸等であり、還元剤とは例えば水素化ホウ素ナトリウム、シアノ水素化ホウ素ナトシウム、水素化

リチウムアルミニウム、トリアセトキシ水素化ホウ素ナトリウム等である。反応溶媒としては、水、メタノール、エタノール、イソプロピルアルコール、tert－ブチルアルコール等のアルコール類、ジオキサン、テトラヒドロフラン等エーテル類、ジメチルホルムアミド、ジメチルスルホキシド、ピリジン、塩化メチレン、クロロホルム、アセトン、酢酸等の反応に不活性な溶媒を用いることができる。

本発明の化合物は常用の増量剤、ｐＨ調節剤、溶解剤などを添加し、常用の製剤技術によって錠剤、顆粒剤、丸剤、カプセル剤、粉剤、液剤、懸濁剤、注射剤、点眼剤などに調整し、経口、注射、点眼などの経路で投与することができる。

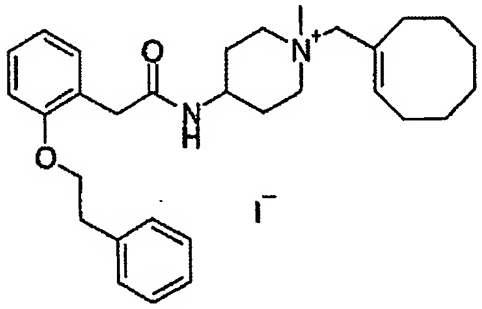
本発明の化合物を、ケモカイン受容体作用阻害剤として用いる場合の投与量は、体重、年齢、性別などにより異なるが、通常成人の患者に対して１日あたり１～１０００ｍｇを１回～数回に分けて投与することができる。

発明を実施するための最良の形態

以下、実施例および試験例により本発明をさらに詳細に説明する。

実施例１

化合物８１，化合物８１'の合成



（１）ピペリジン４－イル－カルバミックアシッド tert-ブチルエステル（6.00g）のテトラヒドロフラン（以下ＴＨＦと略す）（120ml）溶液にシクロオクト－１－エンカルバアルデヒド（4.97g）と酢酸（1.72ml）を加え、さらにトリアセトキシ水素化ホウ素ナトリウム（8.25g）を氷冷下加え、室温で２時間撹拌した。溶媒を留去後、エーテルで希釈し、2mol/l水酸化ナトリウム水溶液、食塩水で順次洗浄した。有機層を無水硫酸マグネシウムで乾燥後、溶媒を留去した。

得られた残渣をシリカゲルフラッシュカラムクロマトグラフィーで酢酸エチルとヘキサンの混合溶媒を用いて精製し、（1－シクロオクト－1－エニル－メチル－ピペリジン－4－イル）－カルバミックアシッド tert-ブチルエステル（3.86g）を得た。

（2）（1－シクロオクト－1－エニル－メチル－ピペリジン－4－イル）－カルバミックアシッド tert-ブチルエステル（3.86g）の塩化メチレン（15ml）溶液にトリフルオロ酢酸（15ml）を氷冷下加え、室温で2時間撹拌した。溶媒を留去後、クロロホルムで希釈し、2mol/l水酸化ナトリウム水溶液で洗浄した。有機層を無水硫酸マグネシウムで乾燥後、溶媒を留去し、未精製の1－シクロオクト－1－エニル－メチル－ピペリジン－4－イルアミン（2.66g）を得た。

（3）1－シクロオクト－1－エニル－メチル－ピペリジン－4－イルアミン（2.66g）と2－ヒドロキシフェニル酢酸（2.18g）と1－ヒドロキシベンゾトリアゾール1水和物（2.75g）のジメチルホルムアミド（30ml）溶液に塩酸1－エチル－3－（3－ジメチル）カルボジイミド（3.44g）を加え、80℃で3時間撹拌した。溶媒を留去後、酢酸エチルで希釈し、食塩水で3回洗浄した。有機層を無水硫酸マグネシウムで乾燥後、溶媒を留去した。得られた残渣をNH型のシリカゲルカラムクロマトグラフィーでメタノールとクロロホルムの混合溶媒を用いて精製し、N－（1－シクロオクト－1－エニル－メチル－ピペリジン－4－イル）－2－（2－ヒドロキシフェニル）アセトアミド（3.88g）を得た。

（4）フェネチルアルコール（183mg）とトリフェニルホスフィン（393mg）と40％ジエチルアゾジカルボキシレート トルエン溶液（653mg）のTHF（20ml）溶液にN－（1－シクロオクト－1－エニル－メチル－ピペリジン－4－イル）－2－（2－ヒドロキシフェニル）アセトアミド（357mg）を氷冷下加え、室温で3時間撹拌した。さらに、フェネチルアルコール（183mg）とトリフェニルホスフィン（393mg）と40％ジエチルアゾジカルボキシレート トルエン溶液（653mg）のTHF（10ml）溶液を加え、室温で2時間撹拌した。

溶媒を留去後、酢酸エチルで希釈し、2mol/l水酸化ナトリウム水溶液、食塩水で順次洗浄した。有機層を無水硫酸マグネシウムで乾燥後、溶媒を留去した。得られ

た残渣をＳＣＸに吸着させ、メタノールとクロロホルムの混合溶媒で洗浄した後、7mol/lアンモニアのメタノール溶液とクロロホルムの混合溶媒で溶出させた。溶媒を留去し、残渣をＮＨ型のシリカゲルフラッシュカラムクロマトグラフィーで酢酸エチルとヘキサンの混合溶媒を用いて精製し、Ｎ－（１－シクロオクト－１－エニル－メチル－ピペリジン－４－イル）－２－（２－フェネチルオキシフェニル）アセトアミド（402mg）を得た。

（５）Ｎ－（１－シクロオクト－１－エニル－メチル－ピペリジン－４－イル）－２－（２－フェネチルオキシフェニル）アセトアミド（2.15g）にヨウ化メチル（20ml）を加え、室温で一晩攪拌した。溶媒を留去し、残渣をシリカゲルカラムクロマトグラフィーでメタノールとクロロホルムの混合溶媒を用いて精製し、Rf値の高い低極性の化合物（cis体）を含むフラクションの溶媒を留去し、標題化合物（表中の化合物８１）（2.25g）を得た。また、Rf値の低い高極性の化合物（trans体）を含むフラクションの溶媒を留去し、標題化合物（表中の化合物８１'）（0.38g）を得た。

化合物８１ ^{1}H NMR (300 MHz, $CDCl_3$) δppm 1.35-1.72 (m, 8 H), 1.78-1.94 (m, 2 H), 2.11-2.41 (m, 6 H), 3.11 (t, J=6.84 Hz, 2 H), 3.27 (s, 3 H), 3.41-3.67 (m, 4 H), 3.57 (s, 2 H), 4.02 (m, 1 H), 4.05 (s, 2 H), 4.20 (t, J=6.84 Hz, 2 H), 6.09 (t, J=8.00 Hz, 1 H), 6.81-7.02 (m, 3 H), 7.14-7.38 (m, 7 H)

化合物８１' ^{1}H NMR (200 MHz, $CDCl_3$) δppm 1.38-1.80 (m, 8 H), 1.80-2.05 (m, 2 H), 2.10-2.42 (m, 6 H), 3.04 (s, 3 H), 3.13 (t, J=6.9 Hz, 2 H), 3.35-3.58 (m, 2 H), 3.70 (s, 2 H), 3.92-4.32(m, 3 H), 4.21 (t, J=6.9 Hz, 2 H), 4.27 (s, 2 H), 6.15 (t, J=8.1 Hz, 1 H), 6.80-6.96 (m, 2 H), 7.12-7.41 (m, 8 H)

実施例

対応する原料を用いて実施例１と同様の操作を行い、以下の表に示した化合物を得た。表ではcis体の化合物のデーターを示した。

表1－1

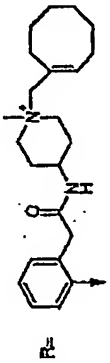
	化合物構造式	^{1}H NMR (300 MHz, CDCl3) d ppm
化合物1		1.03 (t, J=7.38 Hz, 3 H) 1.39–1.51 (m, 4 H) 1.51–1.88 (m, 4 H) 1.80 (qt, J=7.38, 6.53 Hz, 2 H) 1.93–2.05 (m, 2 H) 2.19–2.28 (m, 2 H) 2.32–2.49 (m, 4 H) 3.31 (s, 3 H) 3.60 (s, 2 H) 3.53–3.73 (m, 4 H) 3.94 (t, J=6.53 Hz, 2 H) 4.07 (s, 2 H) 4.12 (m, 1 H) 6.11 (t, J=8.24 Hz, 1 H) 6.83–6.92 (m, 2 H) 7.07 (d, J=7.93 Hz, 1 H) 7.17–7.24 (m, 2 H)
化合物2		0.96 (t, J=7.31 Hz, 3 H) 1.38–1.68 (m, 10 H) 1.76 (m, 2 H) 1.93–2.05 (m, 2 H) 2.18–2.28 (m, 2 H) 2.30–2.48 (m, 4 H) 3.31 (s, 3 H) 3.60 (s, 2 H) 3.52–3.71 (m, 4 H) 3.98 (t, J=6.37 Hz, 2 H) 4.07 (s, 2 H) 4.13 (s, 1 H) 6.11 (t, J=8.24 Hz, 1 H) 6.82–6.92 (m, 2 H) 7.07 (s, 1 H) 7.15–7.24 (m, 2 H)
化合物3		0.90 (t, J=6.99 Hz, 3 H) 1.25–1.38 (m, 4 H) 1.38–1.51 (m, 6 H) 1.51–1.68 (m, 4 H) 1.77 (m, 2 H) 1.93–2.10 (m, 2 H) 2.18–2.28 (m, 2 H) 2.30–2.48 (m, 4 H) 3.32 (s, 3 H) 3.60 (s, 2 H) 3.51–3.73 (m, 4 H) 3.97 (t, J=6.61 Hz, 2 H) 4.08 (s, 2 H) 4.12 (m, 1 H) 6.11 (t, J=8.08 Hz, 1 H) 6.81–6.92 (m, 2 H) 7.02 (m, 1 H) 7.15–7.24 (m, 2 H)
化合物4		0.93 (s, 9 H) 1.08 (d, J=6.68 Hz, 3 H) 1.12 (dd, J=13.99, 6.22 Hz, 1 H) 1.37 (dd, J=13.99, 3.89 Hz, 1 H) 1.41–1.51 (m, 4 H) 1.51–1.68 (m, 4 H) 1.93–2.07 (m, 3 H) 2.19–2.29 (m, 2 H) 2.32–2.50 (m, 4 H) 3.31 (s, 3 H) 3.55–3.75 (m, 7 H) 3.82 (dd, J=8.78, 5.52 Hz, 1 H) 4.09 (s, 2 H) 4.09 (m, 1 H) 6.12 (t, J=8.16 Hz, 1 H) 6.80–6.94 (m, 3 H) 7.17–7.26 (m, 2 H)

表1－2

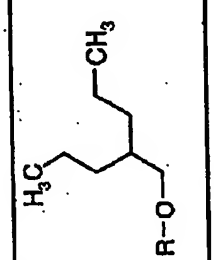
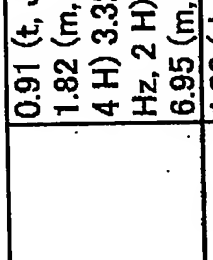
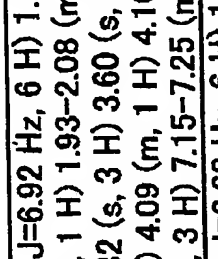
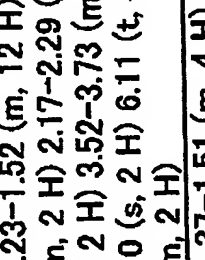
化合物5		0.91 (t, J=6.92 Hz, 6 H) 1.23–1.52 (m, 12 H) 1.52–1.73 (m, 4 H) 1.82 (m, 1 H) 1.93–2.08 (m, 2 H) 2.17–2.29 (m, 2 H) 2.31–2.49 (m, 4 H) 3.32 (s, 3 H) 3.60 (s, 2 H) 3.52–3.73 (m, 4 H) 3.86 (d, J=5.44 Hz, 2 H) 4.09 (m, 1 H) 4.10 (s, 2 H) 6.11 (t, J=8.24 Hz, 1 H) 6.81–6.95 (m, 3 H) 7.15–7.25 (m, 2 H)
化合物6		1.02 (d, J=6.68 Hz, 6 H) 1.37–1.51 (m, 4 H) 1.51–1.71 (m, 4 H) 1.92–2.04 (m, 2 H) 2.08 (m, 1 H) 2.19–2.29 (m, 2 H) 2.31–2.48 (m, 4 H) 3.31 (s, 3 H) 3.61 (s, 2 H) 3.53–3.71 (m, 4 H) 3.74 (d, J=6.53 Hz, 2 H) 4.07 (s, 2 H) 4.11 (m, 1 H) 6.11 (t, J=8.24 Hz, 1 H) 6.81–6.92 (m, 2 H) 7.00 (m, 1 H) 7.16–7.25 (m, 2 H)
化合物7		0.96 (d, J=6.53 Hz, 6 H) 1.36–1.51 (m, 4 H) 1.51–1.72 (m, 6 H) 1.81 (m, 1 H) 1.93–2.06 (m, 2 H) 2.18–2.28 (m, 2 H) 2.31–2.49 (m, 4 H) 3.32 (s, 3 H) 3.59 (s, 2 H) 3.51–3.72 (m, 4 H) 4.00 (t, J=6.68 Hz, 2 H) 4.08 (s, 2 H) 4.12 (m, 1 H) 6.11 (t, J=8.32 Hz, 1 H) 6.82–6.92 (m, 2 H) 7.05 (m, 1 H) 7.16–7.25 (m, 2 H)
化合物8		0.90 (t, J=7.46 Hz, 3 H) 0.93 (d, J=6.37 Hz, 3 H) 1.14–1.31 (m, 2 H) 1.31–1.51 (m, 4 H) 1.51–1.69 (m, 6 H) 1.81 (m, 1 H) 1.93–2.06 (m, 2 H) 2.18–2.29 (m, 2 H) 2.32–2.49 (m, 4 H) 3.32 (s, 3 H) 3.60 (s, 2 H) 3.53–3.72 (m, 4 H) 3.97–4.06 (m, 2 H) 4.08 (s, 2 H) 4.11 (m, 1 H) 6.11 (t, J=8.16 Hz, 1 H) 6.84–6.92 (m, 2 H) 7.01 (m, 1 H) 7.16–7.25 (m, 2 H)

表2－1

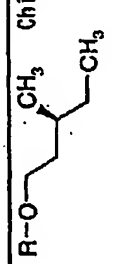
化合物9		0.90 (t, J=7.46 Hz, 3 H) 0.93 (d, J=6.37 Hz, 3 H) 1.14–1.31 (m, 2 H) 1.31–1.51 (m, 4 H) 1.51–1.69 (m, 6 H) 1.81 (m, 1 H) 1.93–2.06 (m, 2 H) 2.18–2.29 (m, 2 H) 2.32–2.49 (m, 4 H) 3.32 (s, 3 H) 3.60 (s, 2 H) 3.53–3.72 (m, 4 H) 3.97–4.06 (m, 2 H) 4.08 (s, 2 H) 4.11 (m, 1 H) 6.11 (t, J=8.16 Hz, 1 H) 6.84–6.92 (m, 2 H) 7.01 (m, 1 H) 7.16–7.25 (m, 2 H)
化合物10		0.91 (t, J=7.31 Hz, 6 H) 1.25–1.51 (m, 8 H) 1.51–1.75 (m, 8 H) 1.93–2.06 (m, 2 H) 2.18–2.28 (m, 2 H) 2.29–2.47 (m, 4 H) 3.32 (s, 3 H) 3.57 (s, 2 H) 3.53–3.73 (m, 4 H) 4.09 (m, 1 H) 4.12 (s, 2 H) 4.30 (quint, J=5.83 Hz, 1 H) 6.12 (t, J=8.32 Hz, 1 H) 6.81–6.90 (m, 2 H) 6.92 (m, 1 H) 7.15–7.24 (m, 2 H)
化合物11		0.91 (d, J=6.68 Hz, 6 H) 1.24–1.37 (m, 2 H) 1.38–1.51 (m, 4 H) 1.51–1.67 (m, 5 H) 1.72–1.84 (m, 2 H) 1.93–2.06 (m, 2 H) 2.18–2.29 (m, 2 H) 2.31–2.48 (m, 4 H) 3.32 (s, 3 H) 3.60 (s, 2 H) 3.52–3.72 (m, 4 H) 3.96 (t, J=6.68 Hz, 2 H) 4.08 (s, 2 H) 4.12 (m, 1 H) 6.11 (t, J=8.00 Hz, 1 H) 6.81–6.92 (m, 2 H) 7.03 (m, 1 H) 7.15–7.24 (m, 2 H)
化合物12		0.99 (s, 9 H) 1.39–1.51 (m, 4 H) 1.51–1.67 (m, 4 H) 1.73 (t, J=7.15 Hz, 2 H) 1.93–2.06 (m, 2 H) 2.19–2.29 (m, 2 H) 2.32–2.51 (m, 4 H) 3.32 (s, 3 H) 3.59 (s, 2 H) 3.53–3.73 (m, 4 H) 4.04 (t, J=7.31 Hz, 2 H) 4.08 (s, 2 H) 4.11 (m, 1 H) 6.11 (t, J=8.16 Hz, 1 H) 6.83–6.92 (m, 2 H) 6.99 (m, 1 H) 7.16–7.26 (m, 2 H)
化合物13		1.38–1.51 (m, 4 H) 1.51–1.68 (m, 4 H) 1.92–2.06 (m, 2 H) 2.18–2.29 (m, 2 H) 2.31–2.50 (m, 4 H) 2.55 (q, J=6.79 Hz, 2 H) 3.32 (s, 3 H) 3.59 (s, 2 H) 3.52–3.73 (m, 4 H) 4.04 (t, J=6.68 Hz, 2 H) 4.07 (s, 2 H) 4.13 (m, 1 H) 5.07–5.21 (m, 2 H) 5.92 (m, 1 H) 6.11 (t, J=8.16 Hz, 1 H) 6.83–6.93 (m, 2 H) 7.11 (m, 1 H) 7.17–7.25 (m, 2 H)

表2－2

化合物14		0.98 (t, J=7.46 Hz, 3 H) 1.38–1.51 (m, 4 H) 1.51–1.71 (m, 4 H) 1.93–2.09 (m, 4 H) 2.18–2.28 (m, 2 H) 2.32–2.52 (m, 6 H) 3.32 (s, 3 H) 3.59 (s, 2 H) 3.52–3.73 (m, 4 H) 3.99 (t, J=6.99 Hz, 2 H) 4.08 (s, 2 H) 4.12 (m, 1 H) 5.46 (m, 1 H) 5.61 (m, 1 H) 6.11 (t, J=8.00 Hz, 1 H) 6.82–6.93 (m, 2 H) 7.07 (m, 1 H) 7.15–7.25 (m, 2 H)
化合物15		0.98 (t, J=7.54 Hz, 3 H) 1.37–1.51 (m, 4 H) 1.51–1.68 (m, 4 H) 1.93–2.04 (m, 2 H) 2.09 (qd, J=7.54, 7.15 Hz, 2 H) 2.18–2.28 (m, 2 H) 2.31–2.48 (m, 4 H) 2.53 (q, J=6.78 Hz, 2 H) 3.32 (s, 3 H) 3.60 (s, 2 H) 3.50–3.73 (m, 4 H) 3.99 (t, J=6.76 Hz, 2 H) 4.08 (s, 2 H) 4.11 (m, 1 H) 5.38–5.58 (m, 2 H) 6.11 (t, J=8.39 Hz, 1 H) 6.82–6.93 (m, 2 H) 7.06 (m, 1 H) 7.15–7.25 (m, 2 H)
化合物16		1.37–1.51 (m, 4 H) 1.51–1.68 (m, 7 H) 1.83 (dt, J=6.92, 6.76 Hz, 2 H) 1.93–2.06 (m, 2 H) 2.09–2.29 (m, 4 H) 2.30–2.48 (m, 4 H) 3.32 (s, 3 H) 3.60 (s, 2 H) 3.51–3.74 (m, 4 H) 3.97 (t, J=6.53 Hz, 2 H) 4.07 (s, 2 H) 4.11 (m, 1 H) 5.42–5.50 (m, 2 H) 6.11 (t, J=8.32 Hz, 1 H) 6.81–6.92 (m, 2 H) 7.07 (m, 1 H) 7.15–7.24 (m, 2 H)
化合物17		1.40–1.51 (m, 4 H) 1.51–1.67 (m, 4 H) 1.77 (d, J=6.37 Hz, 2 H) 1.94–2.14 (m, 2 H) 2.18–2.45 (m, 6 H) 3.30 (s, 3 H) 3.27–3.83 (m, 4 H) 3.61 (s, 2 H) 4.07 (s, 2 H) 4.09 (m, 1 H) 4.59 (d, J=5.75 Hz, 1 H) 5.72–5.86 (m, 2 H) 5.95–6.16 (m, 3 H) 6.31 (dd, J=14.45, 10.88 Hz, 1 H) 6.83–6.94 (m, 2 H) 7.05 (m, 1 H) 7.17–7.25 (m, 2 H)
化合物18		1.37–1.51 (m, 4 H) 1.51–1.70 (m, 4 H) 1.74 (dd, J=6.14, 1.17 Hz, 3 H) 1.92–2.06 (m, 2 H) 2.17–2.28 (m, 2 H) 2.29–2.47 (m, 4 H) 3.32 (s, 3 H) 3.60 (s, 2 H) 3.52–3.72 (m, 4 H) 4.08 (s, 2 H) 4.11 (m, 1 H) 4.50 (d, J=5.44 Hz, 2 H) 5.65–5.91 (m, 2 H) 6.11 (t, J=8.16 Hz, 1 H) 6.82–6.93 (m, 2 H) 7.11–7.24 (m, 3 H)

表3－1

化合物19		1.38–1.68 (m, 10 H) 1.80 (tt, J=6.68, 6.53 Hz, 2 H) 1.93–2.05 (m, 2 H) 2.12 (q, J=7.20 Hz, 2 H) 2.18–2.29 (m, 2 H) 2.31–2.50 (m, 4 H) 3.32 (s, 3 H) 3.60 (s, 2 H) 3.49–3.74 (m, 4 H) 3.99 (t, J=6.53 Hz, 2 H) 4.07 (s, 2 H) 4.11 (m, 1 H) 4.93–5.08 (m, 2 H) 5.83 (m, 1 H) 6.11 (t, J=8.32 Hz, 1 H) 6.81–6.93 (m, 2 H) 7.06 (m, 1 H) 7.15–7.24 (m, 2 H)
化合物20		1.37–1.51 (m, 4 H) 1.51–1.70 (m, 4 H) 1.88 (tt, J=6.84, 6.45 Hz, 2 H) 1.94–2.07 (m, 2 H) 2.17–2.29 (m, 4 H) 2.31–2.49 (m, 4 H) 3.32 (s, 3 H) 3.61 (s, 2 H) 3.50–3.76 (m, 4 H) 3.99 (t, J=6.45 Hz, 2 H) 4.06 (s, 2 H) 4.14 (m, 1 H) 4.96–5.11 (m, 2 H) 5.85 (m, 1 H) 6.10 (t, J=8.39 Hz, 1 H) 6.81–6.93 (m, 2 H) 7.11–7.25 (m, 3 H)
化合物21		1.01 (t, J=7.54 Hz, 3 H) 1.37–1.51 (m, 4 H) 1.51–1.71 (m, 4 H) 1.92–2.06 (m, 2 H) 2.13 (qd, J=7.54, 6.53 Hz, 2 H) 2.18–2.28 (m, 2 H) 2.30–2.48 (m, 4 H) 3.32 (s, 3 H) 3.59 (s, 2 H) 3.50–3.73 (m, 4 H) 4.08 (s, 2 H) 4.12 (m, 1 H) 4.63 (d, J=4.04 Hz, 2 H) 5.56–5.88 (m, 2 H) 6.11 (t, J=8.24 Hz, 1 H) 6.82–6.94 (m, 2 H) 7.11–7.24 (m, 3 H)
化合物22		1.38–1.51 (m, 4 H) 1.51–1.67 (m, 4 H) 1.73 (s, 3 H) 1.77 (s, 3 H) 1.93–2.09 (m, 2 H) 2.18–2.29 (m, 2 H) 2.29–2.47 (m, 4 H) 3.32 (s, 3 H) 3.59 (s, 2 H) 3.52–3.74 (m, 4 H) 4.09 (s, 2 H) 4.13 (m, 1 H) 4.56 (d, J=6.37 Hz, 2 H) 5.45 (t, J=6.37 Hz, 1 H) 6.12 (t, J=8.16 Hz, 1 H) 6.83–6.93 (m, 2 H) 7.07 (m, 1 H) 7.15–7.24 (m, 2 H)
化合物23		1.38–1.51 (m, 4 H) 1.51–1.68 (m, 4 H) 1.65 (s, 3 H) 1.72 (s, 3 H) 1.93–2.06 (m, 2 H) 2.17–2.28 (m, 2 H) 2.32–2.53 (m, 6 H) 3.32 (s, 3 H) 3.60 (s, 2 H) 3.52–3.73 (m, 4 H) 3.95 (t, J=6.99 Hz, 2 H) 4.08 (s, 2 H) 4.12 (m, 1 H) 5.20 (t, J=7.23 Hz, 1 H) 6.11 (t, J=8.16 Hz, 1 H) 6.81–6.93 (m, 2 H) 7.04 (m, 1 H) 7.15–7.25 (m, 2 H)

表3－2

化合物24		1.14 (d, J=6.84 Hz, 3 H) 1.38–1.51 (m, 4 H) 1.51–1.69 (m, 4 H) 1.91–2.06 (m, 2 H) 2.18–2.28 (m, 2 H) 2.32–2.49 (m, 4 H) 2.69 (m, 1 H) 3.31 (s, 3 H) 3.60 (s, 2 H) 3.54–3.73 (m, 4 H) 3.79–3.94 (m, 2 H) 4.08 (s, 2 H) 4.11 (m, 1 H) 5.05–5.19 (m, 2 H) 5.88 (m, 1 H) 6.12 (t, J=8.24 Hz, 1 H) 6.82–6.94 (m, 2 H) 7.00 (m, 1 H) 7.17–7.26 (m, 2 H)
化合物25		1.38–1.51 (m, 4 H) 1.51–1.69 (m, 4 H) 1.81 (s, 3 H) 1.92–2.05 (m, 2 H) 2.18–2.29 (m, 2 H) 2.31–2.48 (m, 4 H) 2.51 (t, J=6.92 Hz, 2 H) 3.32 (s, 3 H) 3.58 (s, 2 H) 3.54–3.73 (m, 4 H) 4.09 (s, 2 H) 4.11 (t, J=6.92 Hz, 2 H) 4.11 (m, 1 H) 4.83 (d, J=12.90 Hz, 2 H) 6.12 (t, J=8.32 Hz, 1 H) 6.85–6.95 (m, 2 H) 7.05 (m, 1 H) 7.17–7.25 (m, 2 H)
化合物26		1.39–1.51 (m, 4 H) 1.51–1.69 (m, 4 H) 1.91–2.04 (m, 2 H) 2.18–2.32 (m, 4 H) 2.32–2.41 (m, 2 H) 3.30 (s, 3 H) 3.49 (s, 3 H) 3.57 (s, 2 H) 3.55–3.69 (m, 4 H) 3.81 (t, J=4.51 Hz, 2 H) 3.99 (m, 1 H) 4.15 (t, J=4.51 Hz, 2 H) 4.17 (s, 2 H) 6.14 (t, J=8.32 Hz, 1 H) 6.85–6.97 (m, 2 H) 7.16–7.28 (m, 3 H)
化合物27		1.25 (t, J=6.99 Hz, 3 H) 1.38–1.52 (m, 4 H) 1.52–1.68 (m, 4 H) 1.93–2.05 (m, 2 H) 2.19–2.42 (m, 6 H) 3.30 (s, 3 H) 3.55–3.71 (m, 4 H) 3.59 (s, 2 H) 3.64 (q, J=6.99 Hz, 2 H) 3.82 (t, J=4.78 Hz, 2 H) 4.01 (m, 1 H) 4.15 (s, 2 H) 4.15 (t, J=4.78 Hz, 2 H) 6.14 (t, J=8.24 Hz, 1 H) 6.87–6.97 (m, 2 H) 7.13–7.28 (m, 3 H)
化合物28		0.94 (t, J=7.38 Hz, 3 H) 1.39–1.51 (m, 4 H) 1.51–1.71 (m, 6 H) 1.92–2.05 (m, 2 H) 2.18–2.41 (m, 6 H) 3.30 (s, 3 H) 3.48–3.71 (m, 4 H) 3.52 (t, J=6.76 Hz, 2 H) 3.59 (s, 2 H) 3.81 (m, J=4.81, 4.81 Hz, 2 H) 4.03 (m, 1 H) 4.14 (s, 2 H) 4.15 (t, J=4.82 Hz, 2 H) 6.13 (t, J=8.32 Hz, 1 H) 6.86–6.96 (m, 2 H) 7.13–7.26 (m, 3 H)

表4－1

化合物29		1.39–1.51 (m, 4 H) 1.51–1.68 (m, 4 H) 1.68–1.80 (m, 2 H) 1.80–1.92 (m, 2 H) 1.94–2.07 (m, 2 H) 2.18–2.28 (m, 2 H) 2.30–2.48 (m, 4 H) 3.32 (s, 3 H) 3.34 (s, 3 H) 3.45 (t, J=6.22 Hz, 2 H) 3.59 (s, 2 H) 3.51–3.74 (m, 4 H) 4.01 (t, J=6.14 Hz, 2 H) 4.08 (s, 2 H) 4.12 (m, 1 H) 6.11 (t, J=8.39 Hz, 1 H) 6.82–6.93 (m, 2 H) 7.08 (m, 1 H) 7.16–7.25 (m, 2 H)
化合物30		1.22 (d, J=6.22 Hz, 3 H) 1.39–1.52 (m, 4 H) 1.52–1.68 (m, 4 H) 1.91–2.06 (m, 2 H) 1.95 (q, J=6.06 Hz, 2 H) 2.19–2.29 (m, 2 H) 2.32–2.48 (m, 4 H) 3.33 (s, 3 H) 3.34 (s, 3 H) 3.50–3.75 (m, 4 H) 3.60 (s, 2 H) 3.60 (qt, J=6.22, 6.06 Hz, 1 H) 4.01–4.17 (m, 3 H) 4.08 (s, 2 H) 6.11 (t, J=8.24 Hz, 1 H) 6.85–6.94 (m, 2 H) 7.15–7.26 (m, 3 H)
化合物31		0.92 (d, J=6.53 Hz, 6 H) 1.37–1.51 (m, 4 H) 1.51–1.72 (m, 4 H) 1.88 (t sept, J=6.68, 6.53 Hz, 1 H) 1.92–2.05 (m, 2 H) 2.17–2.43 (m, 6 H) 3.31 (d, J=6.68 Hz, 2 H) 3.31 (s, 3 H) 3.59 (s, 2 H) 3.51–3.71 (m, 4 H) 3.80 (t, J=4.82 Hz, 2 H) 4.05 (m, 1 H) 4.14 (s, 2 H) 4.16 (t, J=4.82 Hz, 2 H) 6.13 (t, J=8.32 Hz, 1 H) 6.87–6.96 (m, 2 H) 7.15 (m, 1 H) 7.18–7.26 (m, 2 H)
化合物32		1.21 (d, J=6.06 Hz, 6 H) 1.39–1.51 (m, 4 H) 1.51–1.71 (m, 4 H) 1.92–2.06 (m, 2 H) 2.18–2.44 (m, 6 H) 3.30 (s, 3 H) 3.59 (s, 2 H) 3.53–3.68 (m, 4 H) 3.71 (sept, J=6.06 Hz, 1 H) 3.79 (t, J=5.05 Hz, 2 H) 4.04 (m, 1 H) 4.14 (s, 2 H) 4.13 (t, J=5.05 Hz, 2 H) 6.13 (t, J=8.39 Hz, 1 H) 6.87–6.96 (m, 2 H) 7.15 (m, 1 H) 7.18–7.26 (m, 2 H)
化合物33		1.25 (s, 6 H) 1.39–1.51 (m, 4 H) 1.51–1.68 (m, 4 H) 1.94–2.06 (m, 2 H) 2.02 (t, J=6.84 Hz, 2 H) 2.18–2.29 (m, 2 H) 2.31–2.48 (m, 4 H) 3.23 (s, 3 H) 3.32 (s, 3 H) 3.58 (s, 2 H) 3.52–3.74 (m, 4 H) 4.09 (t, J=6.84 Hz, 2 H) 4.09 (s, 2 H) 4.09 (m, 1 H) 6.12 (t, J=8.24 Hz, 1 H) 6.85–6.93 (m, 2 H) 7.15 (m, 1 H) 7.18–7.26 (m, 2 H)

表4－2

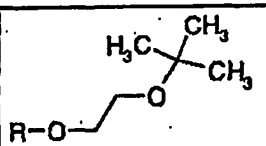
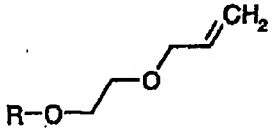
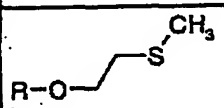
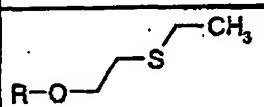
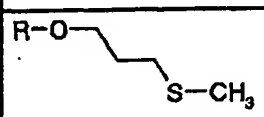
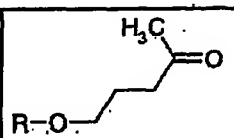
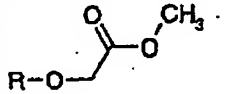
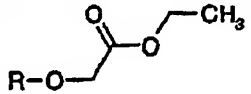
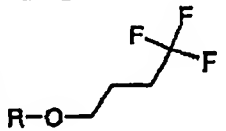
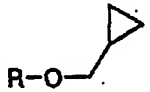
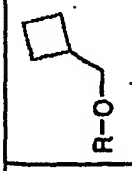
化合物34		1.24 (s, 9 H) 1.37-1.51 (m, 4 H) 1.51-1.71 (m, 4 H) 1.92-2.05 (m, 2 H) 2.18-2.45 (m, 6 H) 3.29 (s, 3 H) 3.60 (s, 2 H) 3.54-3.70 (m, 4 H) 3.73 (t, J=5.28 Hz, 2 H) 4.05 (m, 1 H) 4.10 (t, J=5.28 Hz, 2 H) 4.13 (s, 2 H) 6.13 (t, J=8.39 Hz, 1 H) 6.88-6.95 (m, 2 H) 7.11 (m, 1 H) 7.17-7.25 (m, 2 H)
化合物35		1.38-1.51 (m, 4 H) 1.51-1.69 (m, 4 H) 1.90-2.04 (m, 2 H) 2.18-2.41 (m, 6 H) 3.29 (s, 3 H) 3.58 (s, 2 H) 3.51-3.70 (m, 4 H) 3.85 (t, J=4.74 Hz, 2 H) 4.00 (m, 1 H) 4.13 (dt, J=5.75, 1.40 Hz, 2 H) 4.15 (s, 2 H) 4.17 (t, J=4.74 Hz, 2 H) 5.21-5.38 (m, 2 H) 5.96 (m, 1 H) 6.13 (t, J=8.08 Hz, 1 H) 6.86-6.97 (m, 2 H) 7.13-7.26 (m, 3 H)
化合物36		1.43-1.51 (m, 4 H) 1.51-1.68 (m, 4 H) 1.95-2.09 (m, 2 H) 2.25 (s, 3 H) 2.20-2.31 (m, 2 H) 2.33-2.43 (m, 4 H) 2.96 (t, J=6.06 Hz, 2 H) 3.28 (s, 3 H) 3.61 (s, 2 H) 3.57-3.68 (m, 2 H) 3.70-3.81 (m, 2 H) 4.04 (s, 2 H) 4.09 (m, 1 H) 4.22 (t, J=6.06 Hz, 2 H) 6.13 (t, J=8.00 Hz, 1 H) 6.84-6.99 (m, 2 H) 7.09-7.30 (m, 3 H)
化合物37		1.31 (t, J=7.37 Hz, 3 H) 1.39-1.51 (m, 4 H) 1.51-1.69 (m, 4 H) 1.94-2.08 (m, 2 H) 2.19-2.30 (m, 2 H) 2.30-2.47 (m, 4 H) 2.67 (q, J=7.37 Hz, 2 H) 2.98 (t, J=6.37 Hz, 2 H) 3.31 (s, 3 H) 3.51-3.65 (m, 2 H) 3.61 (s, 2 H) 3.65-3.80 (m, 2 H) 4.08 (m, 1 H) 4.08 (s, 2 H) 4.20 (t, J=6.37 Hz, 2 H) 6.13 (t, J=8.24 Hz, 1 H) 6.85-6.98 (m, 2 H) 7.11 (m, 1 H) 7.19-7.29 (s, 2 H)
化合物38		1.39-1.51 (m, 4 H) 1.51-1.68 (m, 4 H) 1.97-2.14 (m, 4 H) 2.13 (s, 3 H) 2.18-2.32 (m, 2 H) 2.32-2.51 (m, 4 H) 2.71 (t, J=7.15 Hz, 2 H) 3.29 (s, 3 H) 3.50-3.69 (m, 2 H) 3.64 (s, 2 H) 3.76-3.87 (m, 2 H) 3.98 (s, 2 H) 4.11 (t, J=6.14 Hz, 2 H) 4.11 (m, 1 H) 6.11 (t, J=8.32 Hz, 1 H) 6.85-6.97 (m, 3 H) 7.16-7.30 (m, 2 H)

表5－1

化合物39		1.39-1.52 (m, 4 H) 1.52-1.68 (m, 4 H) 1.97-2.12 (m, 4 H) 2.23 (s, 3 H) 2.19-2.30 (m, 2 H) 2.30-2.47 (m, 4 H) 2.73 (t, J=7.07 Hz, 2 H) 3.34 (s, 3 H) 3.46-3.61 (m, 2 H) 3.57 (s, 2 H) 3.70-3.83 (m, 2 H) 3.98 (t, J=6.06 Hz, 2 H) 4.05 (s, 2 H) 4.16 (m, 1 H) 6.11 (t, J=8.16 Hz, 1 H) 6.82 (d, J=7.93 Hz, 1 H) 6.89 (td, J=7.46, 0.93 Hz, 1 H) 7.16-7.24 (m, 2 H) 7.34 (m, 1 H)
化合物40		1.39-1.51 (m, 4 H) 1.51-1.69 (m, 4 H) 1.93-2.06 (m, 2 H) 2.09-2.29 (m, 4 H) 2.33-2.42 (m, 2 H) 3.37 (s, 3 H) 3.32-3.51 (m, 2 H) 3.61 (s, 2 H) 3.66-3.78 (m, 2 H) 3.85 (s, 3 H) 4.05 (m, 1 H) 4.20 (s, 2 H) 4.79 (s, 2 H) 6.16 (t, J=8.39 Hz, 1 H) 6.76 (d, J=8.08 Hz, 1 H) 6.98 (td, J=7.42, 1.01 Hz, 1 H) 7.19-7.36 (m, 3 H)
化合物41		1.34 (t, J=7.15 Hz, 3 H) 1.37-1.50 (m, 4 H) 1.51-1.72 (m, 4 H) 1.92-2.05 (m, 2 H) 2.07-2.28 (m, 4 H) 2.32-2.42 (m, 2 H) 3.35 (s, 3 H) 3.37-3.52 (m, 2 H) 3.61 (s, 2 H) 3.66-3.76 (m, 2 H) 4.03 (m, 1 H) 4.23 (s, 2 H) 4.28 (q, J=7.15 Hz, 2 H) 4.76 (s, 2 H) 6.16 (t, J=8.32 Hz, 1 H) 6.76 (d, J=8.70 Hz, 1 H) 6.97 (td, J=7.50, 1.01 Hz, 1 H) 7.19-7.30 (m, 2 H) 7.35 (m, 1 H)
化合物42		1.37-1.51 (m, 4 H) 1.52-1.71 (m, 4 H) 1.93-2.11 (m, 4 H) 2.18-2.54 (m, 8 H) 3.36 (s, 3 H) 3.43-3.57 (m, 2 H) 3.63 (s, 2 H) 3.67-3.81 (m, 2 H) 4.03 (s, 2 H) 4.05 (t, J=5.91 Hz, 2 H) 4.18 (m, 1 H) 6.10 (t, J=8.16 Hz, 1 H) 6.83 (d, J=8.08 Hz, 1 H) 6.90 (td, J=7.46, 0.78 Hz, 1 H) 7.16-7.24 (m, 2 H) 7.37 (m, 1 H)
化合物43		0.31-0.38 (m, 2 H) 0.56-0.65 (m, 2 H) 1.27 (m, 1 H) 1.36-1.71 (m, 8 H) 1.93-2.09 (m, 2 H) 2.16-2.29 (m, 2 H) 2.29-2.49 (m, 4 H) 3.32 (s, 3 H) 3.47-3.74 (m, 4 H) 3.62 (s, 2 H) 3.85 (d, J=6.68 Hz, 2 H) 4.08 (s, 2 H) 4.13 (m, 1 H) 6.11 (t, J=8.08 Hz, 1 H) 6.83 (d, J=8.70 Hz, 1 H) 6.89 (td, J=7.46, 0.93 Hz, 1 H) 7.11-7.24 (m, 3 H)

16／1

表5－2

化合物44		1.38–1.51 (m, 4 H) 1.51–1.70 (m, 4 H) 1.80–2.06 (m, 6 H) 2.06–2.17 (m, 2 H) 2.17–2.29 (m, 2 H) 2.30–2.49 (m, 4 H) 2.77 (m, 1 H) 3.31 (s, 3 H) 3.60 (s, 2 H) 3.52–3.73 (m, 4 H) 3.95 (d, J=6.37 Hz, 2 H) 4.08 (s, 2 H) 4.11 (m, 1 H) 6.11 (t, J=8.16 Hz, 1 H) 6.82–6.93 (m, 2 H) 6.99 (m, 1 H) 7.16–7.25 (m, 2 H)
化合物45		1.22–1.72 (m, 15 H) 1.77–1.91 (m, 2 H) 1.92–2.07 (m, 2 H) 2.18–2.29 (m, 2 H) 2.30–2.48 (m, 4 H) 3.31 (s, 3 H) 3.60 (s, 2 H) 3.51–3.73 (m, 4 H) 3.86 (d, J=6.84 Hz, 2 H) 4.09 (s, 2 H) 4.09 (m, 1 H) 6.12 (t, J=7.85 Hz, 1 H) 6.82–7.01 (m, 3 H) 7.16–7.25 (m, 2 H)
化合物46		0.97–1.90 (m, 19 H) 1.91–2.10 (m, 2 H) 2.16–2.29 (m, 2 H) 2.29–2.48 (m, 4 H) 3.31 (s, 3 H) 3.61 (s, 2 H) 3.49–3.73 (m, 4 H) 3.77 (d, J=6.06 Hz, 2 H) 4.07 (s, 2 H) 4.11 (m, 1 H) 6.11 (t, J=8.08 Hz, 1 H) 6.79–6.92 (m, 2 H) 7.02 (m, 1 H) 7.14–7.25 (m, 2 H)
化合物47		1.23–1.81 (m, 22 H) 1.91–2.10 (m, 3 H) 2.16–2.29 (m, 2 H) 2.29–2.48 (m, 4 H) 3.31 (s, 3 H) 3.61 (s, 2 H) 3.50–3.78 (m, 4 H) 3.75 (d, J=6.53 Hz, 2 H) 4.09 (s, 2 H) 4.09 (m, 1 H) 6.11 (t, J=8.16 Hz, 1 H) 6.81–6.92 (m, 2 H) 6.96 (m, 1 H) 7.14–7.25 (m, 2 H)
化合物48		1.37–1.52 (m, 5 H) 1.52–1.67 (m, 4 H) 1.81–2.29 (m, 10 H) 2.31–2.49 (m, 4 H) 3.32 (s, 3 H) 3.62 (s, 2 H) 3.51–3.75 (m, 4 H) 3.87 (dd, J=6.37, 1.24 Hz, 2 H) 4.06 (s, 2 H) 4.14 (m, 1 H) 5.63–5.75 (m, 2 H) 6.11 (t, J=8.39 Hz, 1 H) 6.82–6.93 (m, 2 H) 7.09 (m, 1 H) 7.16–7.25 (m, 2 H)
化合物49		0.38–0.44 (m, 2 H) 0.51–0.58 (m, 2 H) 1.23 (s, 3 H) 1.38–1.51 (m, 4 H) 1.51–1.73 (m, 4 H) 1.93–2.12 (m, 2 H) 2.18–2.28 (m, 2 H) 2.30–2.48 (m, 4 H) 3.32 (s, 3 H) 3.52–3.73 (m, 4 H) 3.63 (s, 2 H) 3.76 (s, 2 H) 4.09 (s, 2 H) 4.13 (m, 1 H) 6.11 (t, J=8.24 Hz, 1 H) 6.80 (d, J=8.24 Hz, 1 H) 6.89 (t, J=7.38 Hz, 1 H) 7.06 (m, 1 H) 7.15–7.24 (m, 2 H)

17

表6－1

化合物50		0.35 (m, 1 H) 0.51 (m, 1 H) 0.76 (m, 1 H) 0.96 (m, 1 H) 1.08 (d, J=6.06 Hz, 3 H) 1.36–1.71 (m, 8 H) 1.93–2.09 (m, 2 H) 2.18–2.30 (m, 2 H) 2.30–2.49 (m, 4 H) 3.32 (s, 3 H) 3.62 (s, 2 H) 3.51–3.74 (m, 4 H) 3.81 (dd, J=10.26, 6.84 Hz, 1 H) 3.92 (dd, J=10.26, 6.53 Hz, 1 H) 4.09 (s, 2 H) 4.12 (m, 1 H) 6.12 (t, J=8.32 Hz, 1 H) 6.80–6.93 (m, 2 H) 7.09 (m, 1 H) 7.14–7.24 (m, 2 H)
化合物51		1.01 (d, J=5.75 Hz, 3 H) 1.37–1.67 (m, 8 H) 1.69–1.88 (m, 3 H) 1.91–2.50 (m, 11 H) 3.32 (s, 3 H) 3.45–3.76 (m, 6 H) 3.91 (dd, J=9.09, 5.83 Hz, 1 H) 4.03 (dd, J=9.09, 3.65 Hz, 1 H) 4.06 (s, 2 H) 4.13 (m, 1 H) 5.58–5.71 (m, 2 H) 6.11 (t, J=8.24 Hz, 1 H) 6.81–6.94 (m, 2 H) 7.04 (m, 1 H) 7.15–7.26 (m, 2 H)
化合物52		1.36–1.84 (m, 9 H) 1.89–2.43 (m, 11 H) 3.30 (s, 3 H) 3.44–3.73 (m, 6 H) 3.85–4.09 (m, 5 H) 4.19 (s, 2 H) 4.33 (m, 1 H) 6.15 (t, J=8.24 Hz, 1 H) 6.88 (d, J=7.93 Hz, 1 H) 6.94 (td, J=7.42, 1.01 Hz, 1 H) 7.20–7.29 (m, 3 H)
化合物53		1.36–1.84 (m, 9 H) 1.89–2.43 (m, 11 H) 3.30 (s, 3 H) 3.44–3.73 (m, 6 H) 3.85–4.09 (m, 5 H) 4.19 (s, 2 H) 4.33 (m, 1 H) 6.15 (t, J=8.24 Hz, 1 H) 6.88 (d, J=7.93 Hz, 1 H) 6.94 (td, J=7.42, 1.01 Hz, 1 H) 7.20–7.29 (m, 3 H)
化合物54		1.37–1.70 (m, 8 H) 1.80 (m, 1 H) 1.92–2.30 (m, 5 H) 2.30–2.51 (m, 4 H) 2.78 (m, 1 H) 3.35 (s, 3 H) 3.45–3.63 (m, 4 H) 3.64–3.82 (m, 4 H) 3.85–4.09 (m, 4 H) 4.07 (s, 2 H) 4.13 (m, 1 H) 6.12 (t, J=8.00 Hz, 1 H) 6.84 (d, J=7.77 Hz, 1 H) 6.91 (td, J=7.46, 0.93 Hz, 1 H) 7.18–7.29 (m, 3 H)
化合物55		1.36–1.74 (m, 13 H) 1.85–2.02 (m, 3 H) 2.14–2.31 (m, 4 H) 2.31–2.42 (m, 2 H) 3.27 (s, 3 H) 3.44–3.72 (m, 7 H) 3.79 (m, 1 H) 3.84–4.03 (m, 3 H) 4.10 (m, 1 H) 4.21 (s, 2 H) 6.16 (t, J=8.08 Hz, 1 H) 6.86 (d, J=7.93 Hz, 1 H) 6.93 (td, J=7.42, 0.85 Hz, 1 H) 7.18–7.30 (m, 3 H)

表6－2

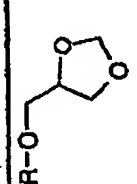
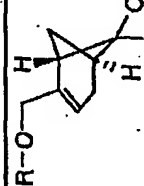
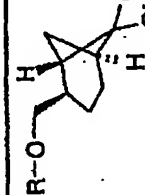
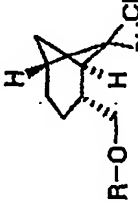
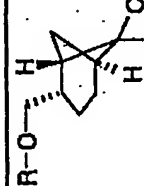
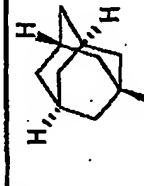
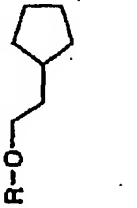
化合物56		1.38–1.68 (m, 8 H) 1.95–2.08 (m, 2 H) 2.19–2.29 (m, 2 H) 2.29–2.46 (m, 4 H) 3.33 (s, 3 H) 3.48–3.80 (m, 6 H) 3.90 (dd, J=8.32, 5.36 Hz, 1 H) 4.01–4.16 (m, 6 H) 4.52 (m, 1 H) 4.95 (s, 1 H) 5.13 (s, 1 H) 6.12 (t, J=8.24 Hz, 1 H) 6.87 (d, J=8.08 Hz, 1 H) 6.94 (td, J=7.50, 1.01 Hz, 1 H) 7.19–7.30 (m, 3 H)
化合物57		1.40 (s, 3 H) 1.39–1.69 (m, 8 H) 1.96–2.10 (m, 2 H) 2.19–2.42 (m, 6 H) 3.31 (s, 3 H) 3.42–3.57 (m, 2 H) 3.64 (s, 2 H) 3.73–3.84 (m, 2 H) 3.98 (s, 2 H) 4.06 (s, 2 H) 4.09 (m, 1 H) 4.54 (d, J=5.83 Hz, 2 H) 4.71 (d, J=5.83 Hz, 2 H) 6.12 (t, J=8.47 Hz, 1 H) 6.84–7.00 (m, 2 H) 7.18–7.51 (m, 3 H)
化合物58		0.95 (t, J=7.46 Hz, 3 H) 1.38–1.52 (m, 4 H) 1.52–1.69 (m, 4 H) 1.84 (q, J=7.46 Hz, 2 H) 1.95–2.08 (m, 2 H) 2.19–2.41 (m, 6 H) 3.33 (s, 3 H) 3.41–3.56 (m, 2 H) 3.63 (s, 2 H) 3.70–3.83 (m, 2 H) 4.03 (s, 2 H) 4.08 (m, 1 H) 4.10 (s, 2 H) 4.55 (d, J=5.91 Hz, 2 H) 4.66 (d, J=5.91 Hz, 2 H) 6.13 (t, J=8.16 Hz, 1 H) 6.88–6.99 (m, 2 H) 7.18–7.31 (m, 2 H) 7.38 (m, 1 H)
化合物59		1.02 (d, J=6.99 Hz, 3 H) 1.06–2.49 (m, 26 H) 3.31 (s, 3 H) 3.51–4.02 (m, 8 H) 4.09 (s, 2 H) 4.10 (m, 1 H) 6.12 (t, J=8.24 Hz, 1 H) 6.81–6.96 (m, 3 H) 7.15–7.27 (m, 2 H)
化合物60		0.75 (m, 1 H) 1.04–1.68 (m, 15 H) 1.79 (m, 1 H) 1.88–2.07 (m, 2 H) 2.18–2.49 (m, 8 H) 3.30 (s, 3 H) 3.52–3.77 (m, 6 H) 3.84 (t, J=9.17 Hz, 1 H) 3.99 (dd, J=9.17, 6.68 Hz, 1 H) 4.09 (m, 1 H) 4.10 (s, 2 H) 6.12 (t, J=8.24 Hz, 1 H) 6.83–7.00 (m, 3 H) 7.16–7.27 (m, 2 H)

表7－1

化合物61		0.83 (s, 3 H) 1.16 (d, J=8.55 Hz, 1 H) 1.30 (s, 3 H) 1.37–1.73 (m, 8 H) 1.92–2.47 (m, 13 H) 3.31 (s, 3 H) 3.59 (s, 2 H) 3.51–3.72 (m, 4 H) 4.11 (s, 2 H) 4.11 (m, 1 H) 4.42 (d, J=1.40 Hz, 2 H) 5.60 (m, 1 H) 6.12 (t, J=8.24 Hz, 1 H) 6.83–6.93 (m, 2 H) 7.00 (m, 1 H) 7.15–7.23 (m, 2 H)
化合物62		1.01 (s, 3 H) 1.20 (s, 3 H) 0.95–2.65 (m, 25 H) 3.29 (s, 3 H) 3.49–4.26 (m, 11 H) 6.12 (t, J=8.24 Hz, 1 H) 6.76–6.94 (m, 2 H) 7.07 (m, 1 H) 7.17–7.34 (m, 2 H)
化合物63		0.88 (s, 3 H) 1.23 (s, 3 H) 1.36–1.51 (m, 6 H) 1.51–1.69 (m, 4 H) 1.69–2.14 (m, 8 H) 2.14–2.30 (m, 2 H) 2.30–2.54 (m, 5 H) 3.31 (s, 3 H) 3.59 (s, 2 H) 3.50–3.71 (m, 4 H) 3.78 (m, 2 H) 4.09 (s, 2 H) 4.12 (m, 1 H) 6.11 (t, J=8.16 Hz, 1 H) 6.81–6.92 (m, 2 H) 6.96 (m, 1 H) 7.13–7.24 (m, 2 H)
化合物64		0.88 (s, 3 H) 1.23 (s, 3 H) 1.36–1.51 (m, 6 H) 1.51–1.69 (m, 4 H) 1.69–2.14 (m, 8 H) 2.14–2.30 (m, 2 H) 2.30–2.54 (m, 5 H) 3.31 (s, 3 H) 3.59 (s, 2 H) 3.50–3.71 (m, 4 H) 3.78 (m, 2 H) 4.09 (s, 2 H) 4.12 (m, 1 H) 6.11 (t, J=8.16 Hz, 1 H) 6.81–6.92 (m, 2 H) 6.96 (m, 1 H) 7.13–7.24 (m, 2 H)
化合物65		1.38–1.82 (m, 20 H) 1.91–2.07 (m, 5 H) 2.17–2.44 (m, 6 H) 3.29 (s, 3 H) 3.53 (s, 2 H) 3.63 (s, 2 H) 3.55–3.76 (m, 4 H) 4.06 (m, 1 H) 4.09 (s, 2 H) 6.13 (t, J=8.47 Hz, 1 H) 6.75 (m, 1 H) 6.82–6.94 (m, 2 H) 7.16–7.27 (m, 2 H)
化合物66		1.08–1.24 (m, 2 H) 1.37–1.71 (m, 12 H) 1.74–1.87 (m, 4 H) 1.87–2.10 (m, 3 H) 2.16–2.30 (m, 2 H) 2.30–2.49 (m, 4 H) 3.32 (s, 3 H) 3.60 (s, 2 H) 3.46–3.73 (m, 4 H) 4.00 (t, J=6.84 Hz, 2 H) 4.08 (s, 2 H) 4.10 (m, 1 H) 6.11 (t, J=8.16 Hz, 1 H) 6.81–6.93 (m, 2 H) 7.03 (m, 1 H) 7.13–7.25 (m, 2 H)

18／1

表7－2

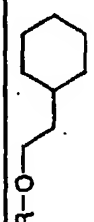
化合物67		0.76–1.80 (m, 21 H) 1.91–2.11 (m, 2 H) 2.11–2.50 (m, 6 H) 3.30 (s, 3 H) 3.60 (s, 2 H) 3.46–3.75 (m, 4 H) 4.02 (t, J=6.84 Hz, 2 H) 4.07 (m, 1 H) 4.07 (s, 2 H) 6.12 (t, J=8.16 Hz, 1 H) 6.82–6.94 (m, 3 H) 7.15–7.27 (m, 2 H)
化合物68		1.00 (d, J=6.84 Hz, 3 H) 0.95–1.87 (m, 20 H) 1.91–2.10 (m, 2 H) 2.16–2.49 (m, 6 H) 3.31 (s, 3 H) 3.61 (s, 2 H) 3.48–3.81 (m, 4 H) 3.77 (dd, J=8.94, 7.38 Hz, 1 H) 3.96 (dd, J=8.94, 5.13 Hz, 1 H) 4.06 (m, 1 H) 4.08 (s, 2 H) 6.11 (t, J=8.39 Hz, 1 H) 6.81–6.93 (m, 3 H) 7.15–7.25 (m, 2 H)
化合物69		1.03 (m, 3 H) 1.20–2.12 (m, 21 H) 2.17–2.49 (m, 6 H) 3.31 (s, 3 H) 3.46–3.74 (m, 4 H) 3.60 (s, 2 H) 3.82 (m, 1 H) 3.96 (m, 1 H) 4.08 (s, 2 H) 4.08 (m, 1 H) 5.36 (m, 1 H) 6.11 (t, J=8.16 Hz, 1 H) 6.81–6.98 (m, 3 H) 7.13–7.26 (m, 2 H)
化合物70		1.03 (m, 3 H) 1.20–2.12 (m, 21 H) 2.17–2.49 (m, 6 H) 3.31 (s, 3 H) 3.46–3.74 (m, 4 H) 3.60 (s, 2 H) 3.82 (m, 1 H) 3.96 (m, 1 H) 4.08 (s, 2 H) 4.08 (m, 1 H) 5.36 (m, 1 H) 6.11 (t, J=8.16 Hz, 1 H) 6.81–6.98 (m, 3 H) 7.13–7.26 (m, 2 H)
化合物71		0.83 (s, 3 H) 1.16 (d, J=8.55 Hz, 1 H) 1.28 (s, 3 H) 1.37–1.75 (m, 8 H) 1.92–2.14 (m, 4 H) 2.14–2.30 (m, 4 H) 2.30–2.52 (m, 7 H) 3.32 (s, 3 H) 3.59 (s, 2 H) 3.51–3.74 (m, 4 H) 3.99 (t, J=7.15 Hz, 2 H) 4.09 (s, 2 H) 4.09 (m, 1 H) 5.35 (m, 1 H) 6.12 (t, J=8.24 Hz, 1 H) 6.81–6.93 (m, 2 H) 7.03 (m, 1 H) 7.15–7.25 (m, 2 H)
化合物72		0.83 (s, 3 H) 1.16 (d, J=8.55 Hz, 1 H) 1.28 (s, 3 H) 1.37–1.75 (m, 8 H) 1.92–2.14 (m, 4 H) 2.14–2.30 (m, 4 H) 2.30–2.52 (m, 7 H) 3.32 (s, 3 H) 3.59 (s, 2 H) 3.51–3.74 (m, 4 H) 3.99 (t, J=7.15 Hz, 2 H) 4.09 (s, 2 H) 4.09 (m, 1 H) 5.35 (m, 1 H) 6.12 (t, J=8.24 Hz, 1 H) 6.81–6.93 (m, 2 H) 7.03 (m, 1 H) 7.15–7.25 (m, 2 H)

表8－1

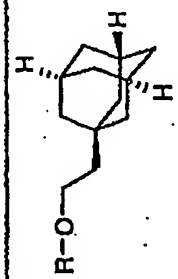
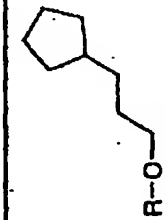
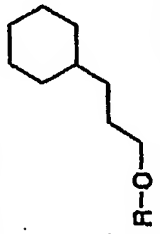
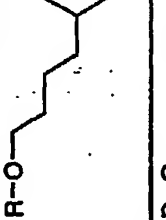
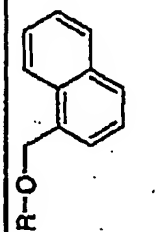
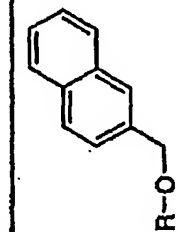
化合物73		1.201.78 (m, 22 H) 1.87–2.12 (m, 5 H) 2.12–2.50 (m, 6 H) 3.30 (s, 3 H) 3.59 (s, 2 H) 3.46–3.75 (m, 4 H) 3.98–4.16 (m, 4 H) 4.22 (m, 1 H) 6.12 (t, J=8.47 Hz, 1 H) 6.78–6.94 (m, 3 H) 7.13–7.27 (m, 2 H)
化合物74		1.00–1.18 (m, 2 H) 1.35–1.88 (m, 19 H) 1.88–2.11 (m, 2 H) 2.11–2.50 (m, 6 H) 3.31 (s, 3 H) 3.60 (s, 2 H) 3.45–3.75 (m, 4 H) 3.97 (t, J=6.61 Hz, 2 H) 4.08 (m, 1 H) 4.08 (s, 2 H) 6.11 (t, J=8.08 Hz, 1 H) 6.80–6.93 (m, 2 H) 7.01 (m, 1 H) 7.12–7.25 (m, 2 H)
化合物75		0.77–1.02 (m, 2 H) 1.04–1.88 (m, 21 H) 1.91–2.11 (m, 2 H) 2.15–2.51 (m, 6 H) 3.31 (s, 3 H) 3.59 (s, 2 H) 3.48–3.75 (m, 4 H) 3.95 (t, J=6.76 Hz, 2 H) 4.09 (s, 2 H) 4.11 (m, 1 H) 6.11 (t, J=8.16 Hz, 1 H) 6.79–6.93 (m, 2 H) 7.03 (m, 1 H) 7.13–7.25 (m, 2 H)
化合物76		0.76–0.97 (m, 2 H) 1.05–1.82 (m, 23 H) 1.89–2.10 (m, 2 H) 2.13–2.49 (m, 6 H) 3.31 (s, 3 H) 3.59 (s, 2 H) 3.47–3.73 (m, 4 H) 3.97 (t, J=6.68 Hz, 2 H) 4.08 (s, 2 H) 4.08 (m, 1 H) 6.11 (t, J=8.08 Hz, 1 H) 6.80–6.93 (m, 2 H) 6.99 (m, 1 H) 7.12–7.25 (m, 2 H)
化合物77		1.34–1.75 (m, 10 H) 1.75–1.97 (m, 2 H) 2.12–2.36 (m, 4 H) 3.09 (s, 3 H) 3.20–3.35 (m, 2 H) 3.35–3.50 (m, 2 H) 3.57 (s, 2 H) 3.84 (m, 1 H) 3.95 (s, 2 H) 5.51 (s, 2 H) 6.03 (t, J=8.08 Hz, 1 H) 6.82–6.98 (m, 2 H) 7.05 (d, J=8.24 Hz, 1 H) 7.18–7.29 (m, 2 H) 7.43–7.68 (m, 4 H) 7.81–7.94 (m, 2 H) 8.04 (d, J=7.93 Hz, 1 H)
化合物78		1.32–1.70 (m, 10 H) 1.73–1.92 (m, 2 H) 2.10–2.30 (m, 4 H) 2.92 (s, 3 H) 3.01–3.20 (m, 2 H) 3.20–3.36 (m, 2 H) 3.66 (s, 2 H) 3.78 (s, 2 H) 3.98 (m, 1 H) 5.18 (s, 2 H) 5.92 (t, J=8.24 Hz, 1 H) 6.85–6.99 (m, 2 H) 7.14–7.34 (m, 3 H) 7.41–7.52 (m, 2 H) 7.61 (dd, J=8.47, 1.32 Hz, 1 H) 7.79–7.98 (m, 4 H)

表8－2

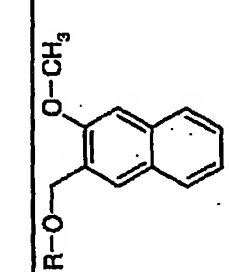
化合物79		1.34–2.08 (m, 12 H) 2.08–2.35 (m, 4 H) 2.92 (s, 3 H) 3.08–3.40 (m, 4 H) 3.68 (s, 2 H) 3.83 (s, 2 H) 3.98 (m, 1 H) 4.00 (s, 3 H) 5.23 (s, 2 H) 5.96 (t, J=8.78 Hz, 1 H) 6.87–7.05 (m, 2 H) 7.09 (m, 1 H) 7.16–7.47 (m, 5 H) 7.77 (d, J=8.70 Hz, 1 H) 7.83–8.02 (m, 2 H)
化合物80		1.33–1.75 (m, 10 H) 1.77–2.04 (m, 2 H) 2.07–2.32 (m, 4 H) 3.01 (s, 3 H) 3.16–3.44 (m, 4 H) 3.62 (s, 2 H) 3.87 (s, 2 H) 3.98 (m, 1 H) 3.98 (s, 3 H) 5.29 (s, 2 H) 5.97 (t, J=8.24 Hz, 1 H) 6.91 (t, J=7.46 Hz, 1 H) 7.03 (d, J=8.08 Hz, 1 H) 7.13–7.29 (m, 3 H) 7.43–7.60 (m, 2 H) 7.64–7.77 (m, 2 H) 7.88 (d, J=7.31 Hz, 1 H) 8.12 (d, J=8.08 Hz, 1 H)
化合物81		1.35–1.72 (m, 8 H) 1.78–1.94 (m, 2 H) 2.11–2.41 (m, 6 H) 3.11 (t, J=6.84 Hz, 2 H) 3.27 (s, 3 H) 3.41–3.67 (m, 4 H) 3.57 (s, 2 H) 4.02 (m, 1 H) 4.05 (s, 2 H) 4.20 (t, J=6.84 Hz, 2 H) 6.09 (t, J=8.00 Hz, 1 H) 6.81–7.02 (m, 3 H) 7.14–7.38 (m, 7 H)
化合物82		1.36–1.72 (m, 8 H) 1.80–1.95 (m, 2 H) 2.14–2.44 (m, 6 H) 2.37 (s, 3 H) 3.13 (t, J=7.15 Hz, 2 H) 3.29 (s, 3 H) 3.42–3.68 (m, 4 H) 3.59 (s, 2 H) 4.05 (m, 1 H) 4.05 (s, 2 H) 4.18 (t, J=7.15 Hz, 2 H) 6.09 (t, J=8.24 Hz, 1 H) 6.81–6.93 (m, 2 H) 6.99 (m, 1 H) 7.07–7.27 (m, 6 H)
化合物83		1.35–1.71 (m, 8 H) 1.80–1.96 (m, 2 H) 2.12–2.40 (m, 6 H) 2.34 (s, 3 H) 3.07 (t, J=7.00 Hz, 2 H) 3.28 (s, 3 H) 3.42–3.87 (m, 4 H) 3.57 (s, 2 H) 4.04 (m, 1 H) 4.06 (s, 2 H) 4.18 (t, J=7.00 Hz, 2 H) 6.09 (t, J=8.32 Hz, 1 H) 6.79–6.93 (m, 2 H) 6.98 (m, 1 H) 7.01–7.12 (m, 3 H) 7.13–7.26 (m, 3 H)

表9－1

化合物84		1.36–1.74 (m, 8 H) 1.83–1.98 (m, 2 H) 2.15–2.45 (m, 6 H) 2.32 (s, 3 H) 3.06 (t, J=6.99 Hz, 2 H) 3.29 (s, 3 H) 3.43–3.69 (m, 4 H) 3.57 (s, 2 H) 4.05 (s, 2 H) 4.05 (m, 1 H) 4.16 (t, J=6.99 Hz, 2 H) 6.09 (t, J=8.47 Hz, 1 H) 6.80–6.92 (m, 2 H) 7.03 (m, 1 H) 7.09–7.24 (m, 6 H)
化合物85		1.30 (s, 9 H) 1.35–1.70 (m, 8 H) 1.90–2.07 (m, 2 H) 2.10–2.51 (m, 6 H) 3.08 (t, J=7.31 Hz, 2 H) 3.32 (s, 3 H) 3.41–3.75 (m, 4 H) 3.60 (s, 2 H) 4.05 (s, 2 H) 4.17 (t, J=7.31 Hz, 2 H) 4.17 (m, 1 H) 6.09 (t, J=8.24 Hz, 1 H) 6.79–6.92 (m, 2 H) 7.10–7.25 (m, 5 H) 7.30–7.36 (m, 2 H)
化合物86		1.36–1.72 (m, 8 H) 1.88–2.07 (m, 2 H) 2.25 (s, 3 H) 2.15–2.52 (m, 6 H) 2.34 (s, 6 H) 3.15 (t, J=7.85 Hz, 2 H) 3.32 (s, 3 H) 3.44–3.59 (m, 2 H) 3.63 (s, 2 H) 3.59–3.72 (m, 2 H) 4.02 (t, J=7.85 Hz, 2 H) 4.05 (s, 2 H) 4.12 (m, 1 H) 6.09 (t, J=8.24 Hz, 1 H) 6.77–6.93 (m, 4 H) 7.12–7.25 (m, 3 H)
化合物87		1.36–1.74 (m, 8 H) 1.80–1.96 (m, 2 H) 2.15–2.42 (m, 6 H) 3.11 (t, J=6.84 Hz, 2 H) 3.27 (s, 3 H) 3.55 (s, 2 H) 3.47–3.70 (m, 4 H) 3.85 (s, 3 H) 3.98 (m, 1 H) 4.09 (s, 2 H) 4.19 (t, J=6.84 Hz, 2 H) 6.11 (t, J=8.00 Hz, 1 H) 6.76–7.00 (m, 5 H) 7.13–7.29 (m, 4 H)
化合物88		1.37–1.73 (m, 8 H) 1.81–1.96 (m, 2 H) 2.16–2.41 (m, 6 H) 3.09 (t, J=6.84 Hz, 2 H) 3.28 (s, 3 H) 3.42–3.67 (m, 4 H) 3.56 (s, 2 H) 3.82 (s, 3 H) 4.02 (m, 1 H) 4.06 (s, 2 H) 4.21 (t, J=6.84 Hz, 2 H) 6.10 (t, J=8.08 Hz, 1 H) 6.78 (dd, J=8.24, 2.33 Hz, 1 H) 6.82–6.97 (m, 5 H) 7.15–7.29 (m, 3 H)
化合物89		1.36–1.72 (m, 8 H) 1.79–1.94 (m, 2 H) 2.15–2.41 (m, 6 H) 3.04 (t, J=6.76 Hz, 2 H) 3.28 (s, 3 H) 3.42–3.68 (m, 4 H) 3.57 (s, 2 H) 3.79 (s, 3 H) 4.02 (m, 1 H) 4.05 (s, 2 H) 4.16 (t, J=6.76 Hz, 2 H) 6.09 (t, J=8.08 Hz, 1 H) 6.80–6.94 (m, 5 H) 7.15–7.25 (m, 4 H)

20／1

表9－2

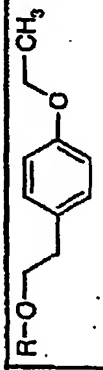
化合物90		1.39 (t, J=6.99 Hz, 3 H) 1.33–1.71 (m, 8 H) 1.80–1.95 (m, 2 H) 2.13–2.40 (m, 6 H) 3.04 (t, J=6.84 Hz, 2 H) 3.28 (s, 3 H) 3.40–3.72 (m, 4 H) 3.57 (s, 2 H) 4.02 (q, J=6.99 Hz, 2 H) 4.03 (m, 1 H) 4.04 (s, 2 H) 4.15 (t, J=6.84 Hz, 2 H) 6.09 (t, J=8.16 Hz, 1 H) 6.72–7.00 (m, 5 H) 7.10–7.24 (m, 4 H)
化合物91		1.36–1.71 (m, 8 H) 1.75–1.90 (m, 2 H) 2.15–2.41 (m, 6 H) 3.06 (t, J=6.68 Hz, 2 H) 3.27 (s, 3 H) 3.40–3.68 (m, 4 H) 3.57 (s, 2 H) 3.87 (s, 3 H) 3.90 (s, 3 H) 3.99 (m, 1 H) 4.03 (s, 2 H) 4.20 (t, J=6.68 Hz, 2 H) 6.10 (t, J=8.24 Hz, 1 H) 6.78–6.93 (m, 6 H) 7.16–7.25 (m, 2 H)
化合物92		1.35–1.71 (m, 8 H) 1.85–2.05 (m, 2 H) 2.14–2.45 (m, 6 H) 3.15 (t, J=6.84 Hz, 2 H) 3.30 (s, 3 H) 3.54 (s, 2 H) 3.46–3.70 (m, 4 H) 4.07 (m, 1 H) 4.07 (s, 2 H) 4.20 (t, J=6.84 Hz, 2 H) 6.10 (t, J=8.24 Hz, 1 H) 6.81–6.93 (m, 2 H) 6.96–7.28 (m, 6 H) 7.34 (td, J=7.50, 1.94 Hz, 1 H)
化合物93		1.37–1.71 (m, 8 H) 1.85–2.05 (m, 2 H) 2.16–2.47 (m, 6 H) 3.25 (t, J=6.84 Hz, 2 H) 3.30 (s, 3 H) 3.57 (s, 2 H) 3.44–3.72 (m, 4 H) 4.05 (s, 2 H) 4.08 (m, 1 H) 4.22 (t, J=6.84 Hz, 2 H) 6.10 (t, J=8.32 Hz, 1 H) 6.82–6.93 (m, 2 H) 7.02 (m, 1 H) 7.13–7.31 (m, 4 H) 7.32–7.43 (m, 2 H)
化合物94		1.36–1.74 (m, 8 H) 1.82–1.98 (m, 2 H) 2.16–2.45 (m, 6 H) 3.10 (t, J=6.65 Hz, 2 H) 3.30 (s, 3 H) 3.57 (s, 2 H) 3.42–3.73 (m, 4 H) 4.04 (s, 2 H) 4.07 (m, 1 H) 4.19 (t, J=6.65 Hz, 2 H) 6.09 (t, J=8.32 Hz, 1 H) 6.79–6.94 (m, 2 H) 7.03 (m, 1 H) 7.14–7.25 (m, 4 H) 7.25–7.33 (m, 2 H)

表10－1

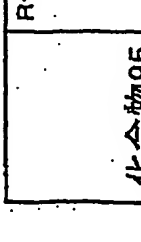
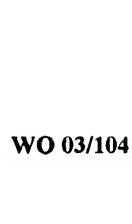
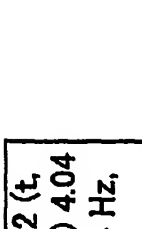
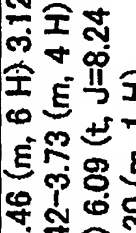
化合物95		1.35–1.71 (m, 8 H) 1.84–1.99 (m, 2 H) 2.15–2.46 (m, 6 H) 3.12 (t, J=6.68 Hz, 2 H) 3.31 (s, 3 H) 3.57 (s, 2 H) 3.42–3.73 (m, 4 H) 4.04 (s, 2 H) 4.07 (m, 1 H) 4.20 (t, J=6.68 Hz, 2 H) 6.09 (t, J=8.24 Hz, 1 H) 6.79–7.12 (m, 6 H) 7.12–7.24 (m, 2 H) 7.30 (m, 1 H)
化合物96		1.36–1.72 (m, 8 H) 1.86–2.03 (m, 2 H) 2.14–2.49 (m, 6 H) 3.26 (t, J=6.84 Hz, 2 H) 3.30 (s, 3 H) 3.58 (s, 2 H) 3.44–3.75 (m, 4 H) 4.05 (s, 2 H) 4.07 (m, 1 H) 4.22 (t, J=6.84 Hz, 2 H) 6.09 (t, J=8.32 Hz, 1 H) 6.82–6.93 (m, 2 H) 6.99–7.24 (m, 4 H) 7.32 (td, J=7.46, 1.24 Hz, 1 H) 7.41 (dd, J=7.46, 1.87 Hz, 1 H) 7.54 (dd, J=7.93, 1.24 Hz, 1 H)
化合物97		1.36–1.72 (m, 8 H) 1.79–1.94 (m, 2 H) 2.16–2.45 (m, 6 H) 3.08 (t, J=6.68 Hz, 2 H) 3.31 (s, 3 H) 3.57 (s, 2 H) 3.41–3.73 (m, 4 H) 4.03 (s, 2 H) 4.06 (m, 1 H) 4.17 (t, J=6.68 Hz, 2 H) 6.09 (t, J=8.24 Hz, 1 H) 6.79–6.93 (m, 2 H) 6.94–7.08 (m, 3 H) 7.11–7.32 (m, 4 H)
化合物98		1.37–1.75 (m, 8 H) 1.75–1.90 (m, 2 H) 2.16–2.44 (m, 8 H) 3.08 (t, J=6.45 Hz, 2 H) 3.30 (s, 3 H) 3.57 (s, 2 H) 3.40–3.73 (m, 4 H) 4.03 (s, 2 H) 4.03 (m, 1 H) 4.18 (t, J=6.45 Hz, 2 H) 6.10 (t, J=8.16 Hz, 1 H) 6.79–6.98 (m, 3 H) 7.13–7.35 (m, 6 H)
化合物99		1.35–1.70 (m, 8 H) 1.73–1.88 (m, 2 H) 2.14–2.41 (m, 6 H) 3.07 (t, J=6.37 Hz, 2 H) 3.30 (s, 3 H) 3.39–3.73 (m, 4 H) 3.57 (s, 2 H) 4.00 (m, 1 H) 4.03 (s, 2 H) 4.19 (t, J=6.37 Hz, 2 H) 6.10 (t, J=8.16 Hz, 1 H) 6.79–6.94 (m, 3 H) 7.11–7.25 (m, 4 H) 7.44 (d, J=8.39 Hz, 2 H)
化合物100		1.36–1.72 (m, 8 H) 1.81–1.96 (m, 2 H) 2.15–2.46 (m, 6 H) 3.10 (t, J=6.68 Hz, 2 H) 3.30 (s, 3 H) 3.57 (s, 2 H) 3.42–3.73 (m, 4 H) 4.04 (s, 2 H) 4.06 (m, 1 H) 4.19 (t, J=6.68 Hz, 2 H) 6.10 (t, J=8.39 Hz, 1 H) 6.81–6.93 (m, 2 H) 6.99 (m, 1 H) 7.14–7.29 (m, 4 H) 7.36 (dt, J=7.15, 1.94 Hz, 1 H) 7.44 (m, 1 H)

表10－2

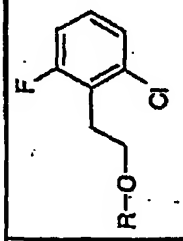
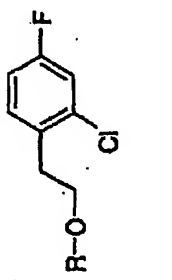
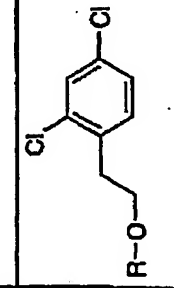
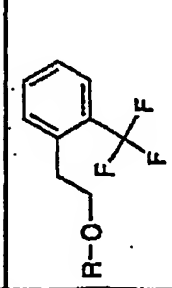
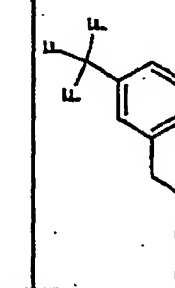
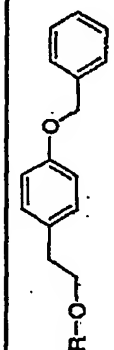
化合物101		1.37–1.70 (m, 8 H) 1.91–2.07 (m, 2 H) 2.16–2.29 (m, 2 H) 2.29–2.48 (m, 4 H) 3.31 (td, J=6.84, 1.87 Hz, 2 H) 3.31 (s, 3 H) 3.54 (s, 2 H) 3.57–3.72 (m, 4 H) 4.07 (m, 1 H) 4.11 (s, 2 H) 4.21 (t, J=6.84 Hz, 2 H) 6.12 (t, J=8.32 Hz, 1 H) 6.80–6.94 (m, 3 H) 7.05 (m, 1 H) 7.13–7.25 (m, 4 H)
化合物102		1.35–1.72 (m, 8 H) 1.85–2.02 (m, 2 H) 2.15–2.30 (m, 2 H) 2.30–2.52 (m, 4 H) 3.21 (t, J=6.68 Hz, 2 H) 3.33 (s, 3 H) 3.43–3.61 (m, 2 H) 3.58 (s, 2 H) 3.61–3.76 (m, 2 H) 4.03 (s, 2 H) 4.14 (m, 1 H) 4.19 (t, J=6.68 Hz, 2 H) 6.10 (t, J=7.93 Hz, 1 H) 6.79–6.93 (m, 2 H) 7.01 (td, J=8.32, 2.64 Hz, 1 H) 7.06–7.25 (m, 4 H) 7.42 (dd, J=8.63, 6.14 Hz, 1 H)
化合物103		1.36–1.72 (m, 8 H) 1.83–1.98 (m, 2 H) 2.16–2.30 (m, 2 H) 2.30–2.51 (m, 4 H) 3.22 (t, J=6.53 Hz, 2 H) 3.33 (s, 3 H) 3.42–3.61 (m, 2 H) 3.58 (s, 2 H) 3.61–3.75 (m, 2 H) 4.03 (s, 2 H) 4.07 (m, 1 H) 4.20 (t, J=6.53 Hz, 2 H) 6.10 (t, J=8.32 Hz, 1 H) 6.81–6.94 (m, 2 H) 7.06 (m, 1 H) 7.15–7.30 (m, 3 H) 7.34–7.44 (m, 2 H)
化合物104		1.36–1.70 (m, 8 H) 1.88–2.05 (m, 2 H) 2.15–2.30 (m, 2 H) 2.30–2.51 (m, 4 H) 3.31 (s, 3 H) 3.31 (m, 2 H) 3.60 (s, 2 H) 3.47–3.75 (m, 4 H) 4.04 (s, 2 H) 4.14 (m, 1 H) 4.20 (t, J=6.92 Hz, 2 H) 6.10 (t, J=8.16 Hz, 1 H) 6.83 (d, J=8.55 Hz, 1 H) 6.89 (t, J=7.54 Hz, 1 H) 7.12–7.25 (m, 3 H) 7.35 (m, 1 H) 7.53–7.61 (m, 2 H) 7.64 (d, J=7.93 Hz, 1 H)
化合物105		1.36–1.72 (m, 8 H) 1.83–1.98 (m, 2 H) 2.15–2.29 (m, 2 H) 2.29–2.49 (m, 4 H) 3.19 (t, J=6.68 Hz, 2 H) 3.31 (s, 3 H) 3.57 (s, 2 H) 3.42–3.74 (m, 4 H) 4.04 (s, 2 H) 4.10 (m, 1 H) 4.22 (t, J=6.68 Hz, 2 H) 6.09 (t, J=8.24 Hz, 1 H) 6.84 (d, J=8.39 Hz, 1 H) 6.89 (t, J=7.46 Hz, 1 H) 7.12 (m, 1 H) 7.16–7.24 (m, 2 H) 7.45–7.59 (m, 4 H)

表11－1

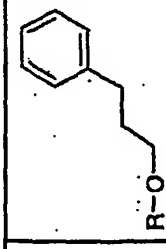
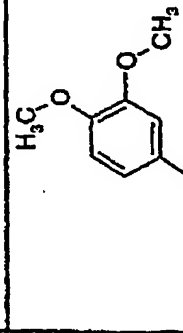
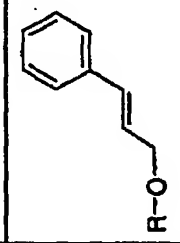
化合物106		1.35–1.76 (m, 8 H) 1.76–1.97 (m, 2 H) 2.13–2.39 (m, 6 H) 3.04 (t, J=6.68 Hz, 2 H) 3.22 (s, 3 H) 3.37–3.52 (m, 2 H) 3.56 (s, 2 H) 3.52–3.65 (m, 2 H) 3.96 (s, 2 H) 4.00 (m, 1 H) 4.16 (t, J=6.68 Hz, 2 H) 5.06 (s, 2 H) 6.02 (t, J=8.32 Hz, 1 H) 6.80–6.93 (m, 3 H) 6.96 (d, J=8.70 Hz, 2 H) 7.14–7.26 (m, 4 H) 7.27–7.49 (m, 5 H)
化合物107		1.36–1.71 (m, 8 H) 1.94–2.09 (m, 2 H) 2.09–2.29 (m, 4 H) 2.29–2.42 (m, 2 H) 3.35 (s, 3 H) 3.32–3.50 (m, 2 H) 3.65 (s, 2 H) 3.67–3.80 (s, 2 H) 4.05 (m, 1 H) 4.23 (s, 2 H) 5.55 (s, 2 H) 6.16 (t, J=8.08 Hz, 1 H) 6.80 (d, J=8.39 Hz, 1 H) 6.97 (t, J=7.46 Hz, 1 H) 7.17–7.73 (m, 6 H) 7.96–8.03 (m, 2 H)
化合物108		1.36–1.69 (m, 10 H) 1.89–2.08 (m, 2 H) 2.14–2.32 (m, 4 H) 3.07 (s, 3 H) 3.10–3.37 (m, 6 H) 3.56 (s, 2 H) 3.70 (m, 1 H) 3.91 (s, 2 H) 4.31 (t, J=6.45 Hz, 2 H) 6.01 (t, J=8.24 Hz, 1 H) 6.64 (s, 1 H) 6.84–6.94 (m, 2 H) 7.15–7.26 (m, 2 H) 7.39–7.50 (m, 3 H) 7.77 (s, 1 H) 7.81–7.89 (m, 3 H)
化合物109		1.34–1.69 (m, 8 H) 1.69–1.82 (m, 2 H) 2.08–2.34 (m, 6 H) 3.16 (s, 3 H) 3.29–3.53 (m, 4 H) 3.58 (s, 2 H) 3.61 (t, J=6.68 Hz, 2 H) 3.95 (m, 1 H) 3.95 (s, 2 H) 4.34 (t, J=6.84 Hz, 2 H) 6.03 (t, J=8.00 Hz, 1 H) 6.79–6.92 (m, 2 H) 6.97 (m, 1 H) 7.12–7.24 (m, 2 H) 7.41–7.59 (m, 4 H) 7.76 (dd, J=5.83, 3.65 Hz, 1 H) 7.87 (dd, J=8.08, 1.09 Hz, 1 H) 8.13 (d, J=8.24 Hz, 1 H)
化合物110		1.41 (d, J=6.99 Hz, 3 H) 1.36–1.71 (m, 8 H) 1.80–1.93 (m, 2 H) 2.17–2.40 (m, 6 H) 3.28 (s, 3 H) 3.28 (m, 1 H) 3.53 (s, 2 H) 3.47–3.67 (m, 4 H) 3.91–4.15 (m, 3 H) 4.09 (s, 2 H) 6.11 (t, J=8.24 Hz, 1 H) 6.76–6.92 (m, 3 H) 7.15–7.40 (m, 7 H)

22／1

表11－2

化合物111		0.85 (t, J=7.38 Hz, 3 H) 1.36–2.03 (m, 12 H) 2.16–2.40 (m, 6 H) 3.00 (m, 1 H) 3.27 (s, 3 H) 3.45 (d, J=15.0 Hz, 1 H) 3.51 (d, J=15.0 Hz, 1 H) 3.50–3.67 (m, 4 H) 3.93 (m, 1 H) 4.07–4.15 (m, 4 H) 6.11 (t, J=8.32 Hz, 1 H) 6.67 (m, 1 H) 6.82–6.91 (m, 2 H) 7.14–7.30 (m, 5 H) 7.32–7.40 (m, 2 H)
化合物112		1.38–1.52 (m, 4 H) 1.52–1.68 (m, 4 H) 1.86–2.05 (m, 2 H) 2.18–2.41 (m, 6 H) 3.29 (s, 3 H) 3.39 (s, 3 H) 3.47 (d, J=14.14 Hz, 1 H) 3.58–3.70 (m, 4 H) 3.64 (d, J=14.14 Hz, 1 H) 3.96 (m, 1 H) 4.10–4.14 (m, 2 H) 4.19 (s, 2 H) 4.67 (dd, J=6.37, 4.90 Hz, 1 H) 6.15 (t, J=8.00 Hz, 1 H) 6.82 (dd, J=8.32, 1.01 Hz, 1 H) 6.92 (td, J=7.50, 1.01 Hz, 1 H) 7.09 (d, J=7.15 Hz, 1 H) 7.15–7.26 (m, 2 H) 7.32–7.46 (m, 5 H)
化合物113		1.38–1.52 (m, 4 H) 1.52–1.68 (m, 4 H) 1.86–2.05 (m, 2 H) 2.18–2.41 (m, 6 H) 3.29 (s, 3 H) 3.39 (s, 3 H) 3.47 (d, J=14.14 Hz, 1 H) 3.58–3.70 (m, 4 H) 3.64 (d, J=14.14 Hz, 1 H) 3.96 (m, 1 H) 4.10–4.14 (m, 2 H) 4.19 (s, 2 H) 4.67 (dd, J=6.37, 4.90 Hz, 1 H) 6.15 (t, J=8.00 Hz, 1 H) 6.82 (dd, J=8.32, 1.01 Hz, 1 H) 6.92 (td, J=7.50, 1.01 Hz, 1 H) 7.09 (d, J=7.15 Hz, 1 H) 7.15–7.26 (m, 2 H) 7.32–7.46 (m, 5 H)
化合物114		1.38–1.51 (m, 4 H) 1.51–1.78 (m, 6 H) 2.06–2.29 (m, 4 H) 2.31–2.39 (m, 2 H) 3.22 (s, 3 H) 3.38 (s, 2 H) 3.50–3.59 (m, 4 H) 3.77 (m, 1 H) 4.08 (s, 2 H) 4.49–4.63 (m, 3 H) 6.11 (t, J=8.32 Hz, 1 H) 6.40 (d, J=7.93 Hz, 1 H) 6.88–6.98 (m, 2 H) 7.14–7.39 (m, 12 H)
化合物115		1.42–1.77 (m, 10 H) 2.11–2.42 (m, 6 H) 3.26 (s, 3 H) 3.36–3.57 (m, 2 H) 3.49 (s, 2 H) 3.57–3.73 (m, 2 H) 3.87 (m, 1 H) 3.92 (s, 2 H) 4.46 (d, J=6.68 Hz, 2 H) 4.62 (t, J=6.68 Hz, 1 H) 6.10 (t, J=8.24 Hz, 1 H) 6.69 (m, 1 H) 6.90–6.97 (m, 2 H) 7.168–7.35 (m, 10 H)

表12－1

化合物116		1.37–1.70 (m, 8 H) 1.86–2.03 (m, 2 H) 2.10 (tt, J=7.62, 6.37 Hz, 2 H) 2.16–2.45 (m, 6 H) 2.80 (t, J=7.62 Hz, 2 H) 3.26 (s, 3 H) 3.40–3.53 (m, 2 H) 3.56–3.67 (m, 2 H) 3.63 (s, 2 H) 3.98 (t, J=6.37 Hz, 2 H) 3.99 (s, 2 H) 4.14 (m, 1 H) 6.06 (t, J=8.16 Hz, 1 H) 6.80 (d, J=8.08 Hz, 1 H) 6.88 (t, J=7.46 Hz, 1 H) 7.14–7.32 (m, 8 H)
化合物117		1.37–1.67 (m, 8 H) 1.89–2.02 (m, 2 H) 2.08 (tt, J=7.54, 6.37 Hz, 2 H) 2.17–2.45 (m, 6 H) 2.75 (t, J=7.54 Hz, 2 H) 3.27 (s, 3 H) 3.37–3.51 (m, 2 H) 3.61–3.71 (m, 2 H) 3.66 (s, 2 H) 3.82 (s, 3 H) 3.85 (s, 3 H) 3.96 (t, J=6.37 Hz, 2 H) 3.98 (s, 2 H) 4.14 (m, 1 H) 6.07 (t, J=8.24 Hz, 1 H) 6.72–6.83 (m, 5 H) 6.88 (t, J=7.54 Hz, 1 H) 7.15–7.23 (m, 2 H)
化合物118		1.38–1.70 (m, 8 H) 1.88–2.00 (m, 2 H) 2.06 (tt, J=7.54, 6.22 Hz, 2 H) 2.16–2.45 (m, 6 H) 2.74 (t, J=7.54 Hz, 2 H) 3.26 (s, 3 H) 3.41–3.55 (m, 2 H) 3.57–3.69 (m, 2 H) 3.63 (s, 2 H) 3.78 (s, 3 H) 3.96 (t, J=6.22 Hz, 2 H) 4.00 (s, 2 H) 4.13 (m, 1 H) 6.07 (t, J=8.16 Hz, 1 H) 6.77–6.91 (m, 4 H) 7.10–7.25 (m, 5 H)
化合物119		1.37–1.70 (m, 8 H) 1.80–1.93 (m, 2 H) 2.14–2.30 (m, 6 H) 3.05 (s, 3 H) 3.21–3.35 (m, 2 H) 3.35–3.49 (m, 2 H) 3.63 (s, 2 H) 3.84 (s, 2 H) 4.10 (m, 1 H) 4.68 (d, J=4.82 Hz, 2 H) 5.97 (t, J=8.40 Hz, 1 H) 6.55–6.74 (m, 2 H) 6.84–6.93 (m, 2 H) 7.12–7.39 (m, 5 H) 7.39–7.53 (m, 3 H)
化合物120		1.31 (d, J=6.99 Hz, 3 H) 1.39–1.65 (m, 8 H) 1.90–2.15 (m, 4 H) 2.17–2.45 (m, 6 H) 3.00 (m, 1 H) 3.29 (s, 3 H) 3.46–3.58 (m, 2 H) 3.60 (s, 2 H) 3.59–3.69 (m, 2 H) 3.82–3.90 (m, 2 H) 4.03 (s, 2 H) 4.13 (m, 1 H) 6.08 (t, J=8.24 Hz, 1 H) 6.72 (d, J=8.08 Hz, 1 H) 6.86 (t, J=7.46 Hz, 1 H) 7.11–7.33 (m, 8 H)

23／1

表12－2

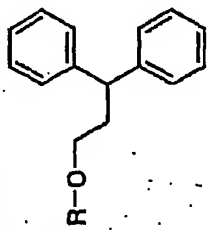
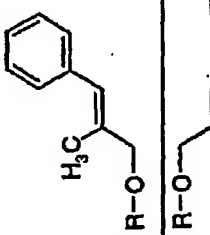
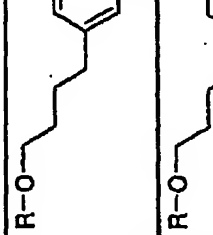
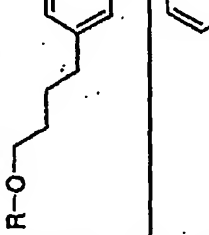
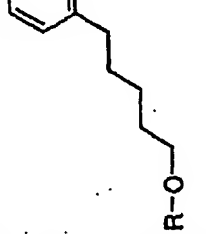
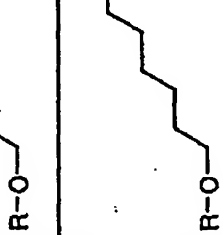
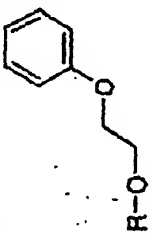
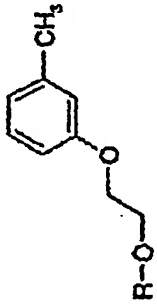
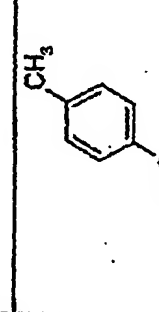
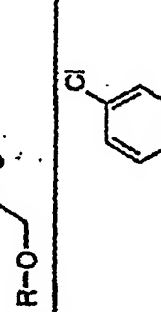
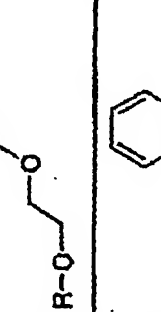
化合物121		1.38–1.65 (m, 8 H) 1.79–1.93 (m, 2 H) 2.17–2.36 (m, 6 H) 2.50 (m, 2 H) 3.20 (s, 3 H) 3.29–3.40 (m, 2 H) 3.52–3.63 (m, 2 H) 3.65 (s, 2 H) 3.89 (t, J=6.22 Hz, 2 H) 3.94 (s, 2 H) 4.11 (m, 1 H) 4.27 (t, J=7.85 Hz, 1 H) 6.04 (t, J=8.24 Hz, 1 H) 6.68 (d, J=8.24 Hz, 1 H) 6.85 (t, J=7.69 Hz, 1 H) 7.09–7.19 (m, 4 H) 7.23–7.33 (m, 9 H)
化合物122		1.39–1.65 (m, 8 H) 1.83–1.98 (m, 2 H) 2.00 (s, 3 H) 2.15–2.37 (m, 6 H) 3.16 (s, 3H) 3.34–3.47 (m, 2 H) 3.50–3.62 (m, 2 H) 3.66 (s, 2 H) 3.94 (s, 2 H) 4.09 (m, 1 H) 4.59 (s, 2 H) 6.03 (t, J=8.00 Hz, 1 H) 6.87–6.95 (m, 2 H) 7.15–7.28 (m, 4 H) 7.29–7.39 (m, 4 H)
化合物123		1.39–1.49 (m, 4 H) 1.51–1.70 (m, 4 H) 1.75–1.89 (m, 6 H) 2.19–2.38 (m, 6 H) 2.68 (t, J=7.31 Hz, 2 H) 3.22 (s, 3 H) 3.34–3.56 (m, 4 H) 3.58 (s, 2 H) 3.94–4.06 (m, 5 H) 6.08 (t, J=8.16 Hz, 1 H) 6.86 (m, 2 H) 6.97 (m, 1 H) 7.13–7.32 (m, 7 H)
化合物124		1.40–1.69 (m, 8 H) 1.70–1.90 (m, 6 H) 2.17–2.38 (m, 6 H) 2.62 (t, J=7.38 Hz, 2 H) 3.23 (s, 3 H) 3.34–3.57 (m, 4 H) 3.58 (s, 2 H) 3.79 (s, 3 H) 3.93–4.05 (m, 5 H) 6.09 (t, J=8.39 Hz, 1 H) 6.78–6.97 (m, 5 H) 7.1–7.24 (m, 4 H)
化合物125		1.37–1.74 (m, 12 H) 1.77–1.86 (m, 2 H) 1.89–2.01 (m, 2 H) 2.17–2.27 (m, 2 H) 2.29–2.47 (m, 4 H) 2.64 (m, 2 H) 3.28 (s, 3 H) 3.46–3.69 (m, 4 H) 3.58 (s, 2 H) 3.97 (t, J=6.61 Hz, 2 H) 4.04 (s, 2 H) 4.10 (m, 1 H) 6.08 (t, J=8.24 Hz, 1 H) 6.80–6.93 (m, 2 H) 7.05 (d, J=8.08 Hz, 1 H) 7.12–7.31 (m, 7 H)
化合物126		1.36–1.70 (m, 14 H) 1.78 (quint, J=6.99 Hz, 2 H) 1.87–2.01 (m, 2 H) 2.17–2.27 (m, 2 H) 2.29–2.45 (m, 4 H) 2.61 (dd, J=7.93, 7.62 Hz, 2 H) 3.25 (s, 3 H) 3.44–3.65 (m, 4 H) 3.59 (s, 2 H) 3.96 (t, J=6.61 Hz, 2 H) 4.02 (s, 2 H) 4.09 (m, 1 H) 6.08 (t, J=8.32 Hz, 1 H) 6.81–6.92 (m, 2 H) 7.03 (m, 1 H) 7.12–7.30 (m, 7 H)

表13－1

化合物127		1.38–1.65 (m, 8 H) 1.79–1.93 (m, 2 H) 2.08–2.33 (m, 6 H) 3.06 (s, 3 H) 3.20–3.34 (m, 2 H) 3.39–3.49 (m, 2 H) 3.62 (s, 2 H) 3.87 (s, 2 H) 4.04 (m, 1 H) 4.32–4.38 (m, 2 H) 4.43–4.49 (m, 2 H) 6.01 (t, J=8.16 Hz, 1 H) 6.88–7.04 (m, 5 H) 7.18–7.35 (m, 5 H)
化合物128		1.39–1.65 (m, 8 H) 1.80–1.92 (m, 2 H) 2.09–2.32 (m, 6 H) 2.33 (s, 3 H) 3.07 (s, 3 H) 3.26–3.47 (m, 4 H) 3.60 (s, 2 H) 3.89 (s, 2 H) 4.05 (m, 1 H) 4.29–4.35 (m, 2 H) 4.38–4.45 (m, 2 H) 6.01 (t, J=8.16 Hz, 1 H) 6.72–6.85 (m, 3 H) 6.87–6.96 (m, 2 H) 7.14–7.25 (m, 3 H) 7.33 (d, J=8.39 Hz, 1 H)
化合物129		1.39–1.64 (m, 8 H) 1.80–1.93 (m, 2 H) 2.08–2.25 (m, 6 H) 2.28 (s, 3 H) 3.06 (s, 3 H) 3.26–3.40 (m, 2 H) 3.41–3.51 (m, 2 H) 3.60 (s, 2 H) 3.91 (s, 2 H) 4.04 (m, 1 H) 4.28–4.34 (m, 2 H) 4.36–4.43 (m, 2 H) 6.02 (t, J=8.16 Hz, 1 H) 6.86–6.95 (m, 4 H) 7.10 (d, J=8.39 Hz, 2 H) 7.20 (d, J=8.08 Hz, 2 H) 7.32 (d, J=7.77 Hz, 1 H)
化合物130		1.40–1.63 (m, 8 H) 1.79–1.91 (m, 2 H) 2.13–2.35 (m, 6 H) 3.12 (s, 3 H) 3.21–3.35 (m, 2 H) 3.45–3.56 (m, 2 H) 3.63 (s, 2 H) 3.82 (s, 2 H) 4.09 (m, 1 H) 4.30–4.36 (m, 2 H) 4.43–4.49 (m, 2 H) 6.02 (t, J=8.00 Hz, 1 H) 6.87–7.01 (m, 4 H) 7.17–7.29 (m, 4 H) 7.40 (d, J=7.31 Hz, 1 H)
化合物131		1.38–1.62 (m, 8 H) 1.85–1.96 (m, 2 H) 2.07–2.33 (m, 6 H) 3.01 (s, 3 H) 3.28–3.41 (m, 2 H) 3.43–3.52 (m, 2 H) 3.62 (s, 2 H) 3.90 (s, 2 H) 4.07 (m, 1 H) 4.37–4.43 (m, 2 H) 4.52–4.58 (m, 2 H) 6.02 (t, J=8.39 Hz, 1 H) 6.89–6.98 (m, 3 H) 7.20–7.36 (m, 6 H)

24／1

表13－2

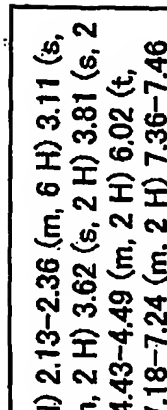
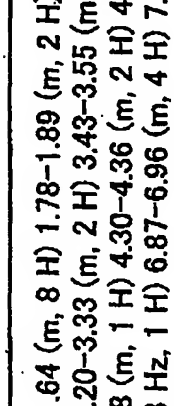
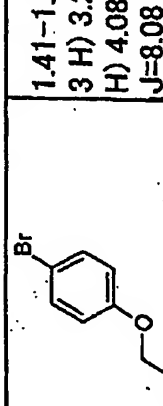
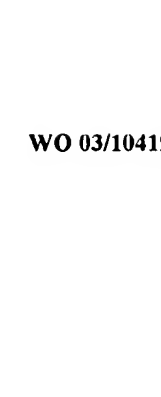
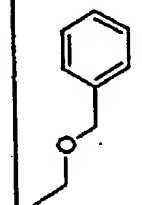
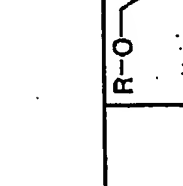
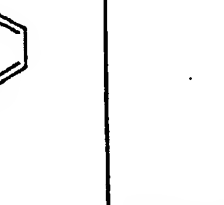
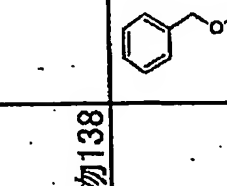
化合物132		1.41–1.64 (m, 8 H) 1.78–1.89 (m, 2 H) 2.13–2.36 (m, 6 H) 3.11 (s, 3 H) 3.20–3.33 (m, 2 H) 3.43–3.55 (m, 2 H) 3.62 (s, 2 H) 3.81 (s, 2 H) 4.08 (m, 1 H) 4.30–4.36 (m, 2 H) 4.43–4.49 (m, 2 H) 6.02 (t, J=8.08 Hz, 1 H) 6.87–6.96 (m, 4 H) 7.18–7.24 (m, 2 H) 7.36–7.46 (m, 3 H)
化合物133		1.37–1.67 (m, 8 H) 1.93–2.05 (m, 2 H) 2.18–2.39 (m, 6 H) 3.27 (s, 3 H) 3.47–3.56 (m, 2 H) 3.57 (s, 2 H) 3.61 (s, 2 H) 4.06 (m, 1 H) 4.10 (s, 2 H) 4.31–4.38 (m, 2 H) 4.53–4.59 (m, 2 H) 6.10 (t, J=8.24 Hz, 1 H) 6.86–6.97 (m, 4 H) 7.07 (d, J=7.93 Hz, 1 H) 7.18–7.28 (m, 2 H)
化合物134		1.40 (d, J=6.22 Hz, 3 H) 1.39–1.64 (m, 8 H) 1.74–1.92 (m, 2 H) 2.03–2.36 (m, 6 H) 3.12 (m, 3 H) 3.30–3.59 (m, 4 H) 3.52 (d, J=14.61 Hz, 1 H) 3.65 (d, J=14.61 Hz, 1 H) 3.96 (m, 1 H) 4.01 (s, 2 H) 4.07 (dd, J=9.87, 3.96 Hz, 1 H) 4.18 (dd, J=9.87, 6.37 Hz, 1 H) 4.86 (m, 1 H) 6.06 (t, J=8.08 Hz, 1 H) 6.85–7.06 (m, 5 H) 7.13 (d, J=9.33 Hz, 1 H) 7.18–7.36 (m, 4 H)
化合物135		1.35–1.59 (m, 8 H) 1.66–1.78 (m, 2 H) 2.00–2.21 (m, 6 H) 2.68 (s, 3 H) 2.94–3.20 (m, 4 H) 3.55 (s, 2 H) 3.62 (s, 2 H) 4.01 (m, 1 H) 4.36–4.42 (m, 2 H) 4.59–4.65 (m, 2 H) 5.82 (t, J=8.00 Hz, 1 H) 6.92 (t, J=7.85 Hz, 2 H) 7.14–7.25 (m, 3 H) 7.34 (t, J=7.46 Hz, 1 H) 7.41–7.49 (m, 3 H) 7.70–7.79 (m, 2 H) 7.85 (d, J=8.24 Hz, 1 H)
化合物136		1.39–1.66 (m, 8 H) 1.88–2.05 (m, 2 H) 2.17–2.44 (m, 6 H) 3.29 (s, 3 H) 3.37–3.51 (m, 2 H) 3.60–3.75 (m, 4 H) 3.97 (s, 2 H) 4.09–4.31 (m, 4 H) 4.45 (dd, J=11.66, 4.20 Hz, 1 H) 4.61 (m, 1 H) 6.07 (t, J=8.16 Hz, 1 H) 6.79–6.96 (m, 6 H) 7.21 (t, J=7.38 Hz, 2 H) 7.43 (m, 1 H)
化合物137		1.39–1.69 (m, 8 H) 1.78–1.90 (m, 2 H) 2.16–2.35 (m, 8 H) 3.19 (s, 3 H) 3.22–3.34 (m, 2 H) 3.45–3.54 (m, 2 H) 3.59 (s, 2 H) 3.93 (s, 2 H) 4.00 (m, 1 H) 4.12–4.21 (m, 4 H) 6.04 (t, J=8.32 Hz, 1 H) 6.84–6.97 (m, 5 H) 7.03 (m, 1 H) 7.17–7.31 (m, 4 H)

表14－1

化合物138		1.39–1.68 (m, 8 H) 1.72–1.84 (m, 2 H) 1.96–2.14 (m, 2 H) 2.17–2.36 (m, 4 H) 3.10 (s, 3 H) 3.27–3.50 (m, 4 H) 3.58 (s, 2 H) 3.82 (m, 1 H) 3.91–3.97 (m, 2 H) 4.04 (s, 2 H) 4.17–4.23 (m, 2 H) 4.65 (s, 2 H) 6.07 (t, J=8.24 Hz, 1 H) 6.86–6.96 (m, 2 H) 7.03 (d, J=7.31 Hz, 1 H) 7.18–7.40 (m, 7 H)
化合物139		1.39–1.68 (m, 8 H) 1.70–1.80 (m, 2 H) 1.88–2.05 (m, 2 H) 2.17–2.35 (m, 4 H) 3.03 (s, 3 H) 3.22–3.46 (m, 4 H) 3.55 (s, 2 H) 3.70–3.84 (m, 5 H) 3.99–4.09 (m, 2 H) 4.52–4.68 (m, 5 H) 6.06 (t, J=8.24 Hz, 1 H) 6.91–7.01 (m, 3 H) 7.16–7.39 (m, 12 H)
化合物140		1.38–1.64 (m, 8 H) 1.69–1.79 (m, 2 H) 1.94–2.10 (m, 2 H) 2.16–2.33 (m, 4 H) 3.04 (s, 3 H) 3.13–3.29 (m, 2 H) 3.32–3.46 (m, 2 H) 3.50 (d, J=14.77 Hz, 1 H) 3.58 (d, J=14.77 Hz, 1 H) 3.74–3.90 (m, 3 H) 3.94 (s, 2 H) 4.04 (m, 1 H) 4.12 (dd, J=9.64, 5.44 Hz, 1 H) 4.22 (dd, J=9.64, 4.35 Hz, 1 H) 4.61 (s, 2 H) 4.75 (s, 2 H) 6.03 (t, J=8.08 Hz, 1 H) 6.86–6.98 (m, 3 H) 7.19–7.43 (m, 12 H)
化合物141		1.40–1.66 (m, 8 H) 1.880–2.00 (m, 2 H) 2.10 (quint, J=6.06 Hz, 2 H) 2.17–2.37 (m, 6 H) 3.22 (s, 3 H) 3.41–3.53 (m, 2 H) 3.56 (s, 2 H) 3.55–3.63 (m, 2 H) 3.72 (t, J=6.06 Hz, 2 H) 3.99 (s, 2 H) 4.06 (m, 1 H) 4.10 (t, J=6.22 Hz, 2 H) 4.54 (s, 2 H) 6.06 (t, J=8.32 Hz, 1 H) 6.84–6.93 (m, 2 H) 7.10–7.37 (m, 8 H)

25／1

表14－2

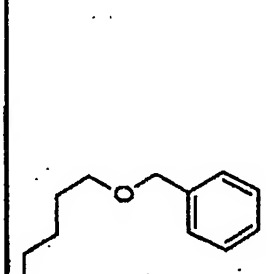
化合物142		1.39–1.65 (m, 8 H) 1.75–1.99 (m, 6 H) 2.17–2.39 (m, 6 H) 3.18 (s, 3 H) 3.35–3.62 (m, 6 H) 3.58 (s, 2 H) 3.93 (s, 2 H) 4.01 (t, J=5.83 Hz, 2 H) 4.06 (m, 1 H) 4.51 (s, 2 H) 6.04 (t, J=8.16 Hz, 1 H) 6.79–6.93 (m, 2 H) 7.04 (d, J=5.75 Hz, 1 H) 7.15–7.37 (m, 7 H)
化合物143		1.38–1.65 (m, 8 H) 1.87–2.01 (m, 2 H) 2.16–2.41 (m, 6 H) 3.24 (s, 3 H) 3.37–3.49 (m, 2 H) 3.58 (s, 2 H) 3.55–3.65 (m, 2 H) 3.94 (s, 2 H) 4.09 (m, 1 H) 4.17 (d, J=5.91 Hz, 2 H) 4.53 (s, 2 H) 4.64 (d, J=5.75 Hz, 2 H) 5.82 (m, 1 H) 5.92 (m, 1 H) 6.04 (t, J=8.16 Hz, 1 H) 6.81 (d, J=8.08 Hz, 1 H) 6.90 (t, J=7.46 Hz, 1 H) 7.15–7.38 (m, 8 H)
化合物144		1.39–1.67 (m, 8 H) 1.91–2.04 (m, J=37.30 Hz, 2 H) 2.16–2.26 (m, 2 H) 2.29–2.46 (m, 4 H) 3.28 (s, 3 H) 3.37 (t, J=6.61 Hz, 2 H) 3.43–3.55 (m, 2 H) 3.60 (s, 2 H) 3.60–3.74 (m, 2 H) 4.03 (s, 2 H) 4.14 (m, 1 H) 4.18 (t, J=6.76 Hz, 2 H) 6.08 (t, J=8.24 Hz, 1 H) 6.79 (d, J=8.08 Hz, 1 H) 6.90 (t, J=7.46 Hz, 1 H) 7.12–7.24(m, 3 H) 7.28–7.35 (m, 3 H) 7.38–7.44 (m, 2 H)
化合物145		1.39–1.64 (m, 8 H) 1.93–2.05 (m, 2 H) 2.19–2.28 (m, 2 H) 2.30–2.48 (m, 4 H) 3.31 (s, 3 H) 3.36 (t, J=6.68 Hz, 2 H) 3.42–3.54 (m, 2 H) 3.61 (s, 2 H) 3.64–3.76 (m, 2 H) 4.00 (s, 2 H) 4.17 (t, J=6.68 Hz, 2 H) 6.08 (t, J=8.00 Hz, 1 H) 6.79 (d, J=7.62 Hz, 1 H) 6.91 (t, J=6.92 Hz, 1 H) 7.14–7.39 (m, 7 H)
化合物146		1.39–1.67 (m, 8 H) 1.83–1.94 (m, 2 H) 2.07–2.07 (m, 4 H) 2.30–2.38 (m, 2 H) 3.25 (s, 3 H) 3.42–3.66 (m, 4 H) 3.60 (s, 2 H) 4.00 (m, 1 H) 4.04 (s, 2 H) 5.28 (s, 2 H) 6.09 (t, J=8.47 Hz, 1 H) 6.87–7.23 (m, 7 H) 7.37 (d, J=4.97 Hz, 1 H)

表15－1

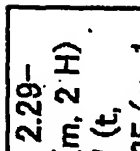
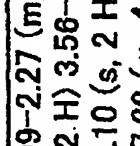
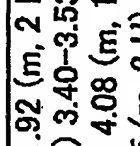
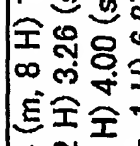
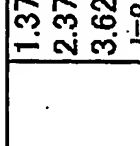
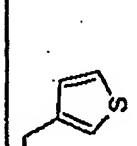
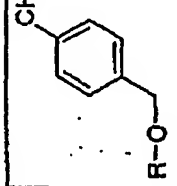
化合物147		1.37–1.64 (m, 8 H) 1.79–1.92 (m, 2 H) 2.09–2.27 (m, 4 H) 2.29–2.37 (m, 2 H) 3.26 (s, 3 H) 3.40–3.53 (m, 2 H) 3.56–3.67 (m, 2 H) 3.62 (s, 2 H) 4.00 (s, 2 H) 4.08 (m, 1 H) 5.10 (s, 2 H) 6.07 (t, J=8.16 Hz, 1 H) 6.87–6.95 (m, 2 H) 7.16–7.29 (m, 4 H) 7.35 (m, 1 H) 7.41 (m, 1 H)
化合物148		1.37–1.68 (m, 8 H) 1.84–1.96 (m, 2 H) 2.15–2.38 (m, 6 H) 3.29 (s, 3 H) 3.42–3.55 (m, 2 H) 3.61 (s, 2 H) 3.60–3.71 (m, 2 H) 4.02 (s, 2 H) 4.10 (m, 1 H) 4.98 (s, 2 H) 6.08 (t, J=8.24 Hz, 1 H) 6.54 (m, 1 H) 6.86–6.95 (m, 2 H) 7.15–7.27 (m, 3 H) 7.44 (m, 1 H) 7.59 (s, 1 H)
化合物149		1.39–1.67 (m, 8 H) 1.90–2.10 (m, 2 H) 2.18–2.29 (m, 4 H) 2.32–2.41 (m, 2 H) 3.27 (s, 3 H) 3.57 (s, 2 H) 3.53–3.65 (m, 4 H) 4.07 (s, 2 H) 5.07 (s, 2 H) 6.12 (t, J=8.32 Hz, 1 H) 6.41 (m, 1 H) 6.48 (m, 1 H) 6.85–7.04 (m, 3 H) 7.20–7.29 (m, 2 H) 7.56 (m, 1 H)
化合物150		1.38–1.69 (m, 8 H) 1.86–1.97 (m, 2 H) 2.16–2.42 (m, 6 H) 3.29 (s, 3 H) 3.33 (t, J=6.53 Hz, 2 H) 3.46–3.68 (m, 4 H) 3.61 (s, 2 H) 4.05 (s, 2 H) 4.08 (m, 1 H) 4.21 (t, J=6.53 Hz, 2 H) 6.09 (t, J=8.16 Hz, 1 H) 6.83–6.99 (m, 4 H) 7.06 (m, 1 H) 7.16–7.25 (m, 3 H)
化合物151		1.39–1.69 (m, 8 H) 1.83–1.95 (m, 2 H) 2.16–2.41 (m, 6 H) 3.14 (t, J=6.61 Hz, 2 H) 3.29 (s, 3 H) 3.46–3.67 (m, 4 H) 3.58 (s, 2 H) 4.04 (s, 2 H) 4.08 (m, 1 H) 4.20 (t, J=6.61 Hz, 2 H) 6.09 (t, J=8.16 Hz, 1 H) 6.82–6.94 (m, 2 H) 7.02–7.09 (m, 2 H) 7.14 (dd, J=2.72, 1.01 Hz, 1 H) 7.16–7.24 (m, 2 H) 7.31 (m, 1 H)
化合物152		1.40–1.67 (m, 8 H) 1.83–1.94 (m, 2 H) 2.18–2.40 (m, 6 H) 3.29 (s, 3 H) 3.40–3.52 (m, 2 H) 3.59 (s, 2 H) 3.60–3.68 (m, 2 H) 4.02 (s, 2 H) 4.08 (m, 1 H) 4.25 (t, J=5.28 Hz, 2 H) 4.33 (t, J=5.13 Hz, 2 H) 6.08 (t, J=8.32 Hz, 1 H) 6.13 (t, J=2.10 Hz, 2 H) 6.76–6.82 (m, 3 H) 6.92 (t, J=7.46 Hz, 1 H) 7.01 (m, 1 H) 7.15–7.26 (m, 2 H)

表15－2

化合物153		1.39–1.68 (m, 8 H) 1.90–2.02 (m, 2 H) 2.16–2.50 (m, 8 H) 3.30 (s, 3 H) 3.36–3.49 (m, 2 H) 3.61–3.73 (m, 2 H) 3.67 (s, 2 H) 3.90 (t, J=5.83 Hz, 2 H) 3.96 (s, 2 H) 4.14 (t, J=6.76 Hz, 2 H) 4.18 (m, 1 H) 6.05 (d, J=8.24 Hz, 1 H) 6.09 (t, J=2.10 Hz, 2 H) 6.68 (t, J=2.10 Hz, 2 H) 6.77 (d, J=7.77 Hz, 1 H) 6.89 (t, J=7.07 Hz, 1 H) 7.15–7.26 (m, 2 H) 7.43 (m, 1 H)
化合物154		1.38–1.66 (m, 8 H) 1.99–2.05 (m, 2 H) 2.10–2.35 (m, 6 H) 2.40 (s, 3 H) 3.00 (t, J=6.29 Hz, 2 H) 3.16 (s, 3 H) 3.41–3.61 (m, 4 H) 3.52 (s, 2 H) 3.99 (m, 1 H) 4.10 (s, 2 H) 4.24 (t, J=6.22 Hz, 2 H) 6.09 (t, J=8.16 Hz, 1 H) 6.83–6.95 (m, 2 H) 7.16–7.24 (m, 2 H) 7.39–7.49 (m, 3 H) 7.79 (d, J=7.46 Hz, 1 H) 7.93–8.01 (m, 2 H)
化合物155		1.37–1.64 (m, 8 H) 1.77–1.91 (m, 2 H) 2.05–2.38 (s, 6 H) 3.23 (s, 3 H) 3.38–3.50 (m, 2 H) 3.54–3.67 (m, 2 H) 3.65 (s, 2 H) 4.00 (s, 2 H) 4.05 (m, 1 H) 5.10 (s, 2 H) 6.07 (t, J=8.08 Hz, 1 H) 6.87–6.96 (m, 2 H) 7.13–7.25 (m, 2 H) 7.28–7.51 (m, 6 H)
化合物156		1.37–1.63 (m, 8 H) 1.76–1.88 (m, 2 H) 2.05–2.26 (m, 4 H) 2.29–2.35 (m, 2 H) 2.37 (s, 3 H) 3.23 (s, 3 H) 3.37–3.50 (m, 2 H) 3.53–3.65 (m, 2 H) 3.62 (s, 2 H) 4.01 (s, 2 H) 4.05 (m, 1 H) 5.05 (s, 2 H) 6.07 (t, J=8.16 Hz, 1 H) 6.87–6.97 (m, 2 H) 7.12–7.26 (m, 6 H) 7.43 (m, 1 H)
化合物157		1.39–1.64 (m, 8 H) 1.79–1.91 (m, 2 H) 2.06–2.26 (m, 4 H) 2.29–2.36 (m, 2 H) 2.37 (s, 3 H) 3.23 (s, 3 H) 3.39–3.51 (m, 2 H) 3.54–3.66 (m, 2 H) 3.64 (s, 2 H) 4.01 (s, 2 H) 4.06 (m, 1 H) 5.05 (s, 2 H) 6.07 (t, J=8.24 Hz, 1 H) 6.86–6.93 (m, 2 H) 7.08–7.31 (m, 7 H)

表16－1

化合物158		1.36–1.65 (m, 8 H) 1.79–1.91 (m, 2 H) 2.05–2.27 (m, 4 H) 2.29–2.37 (m, 2 H) 2.34 (s, 3 H) 3.23 (s, 3 H) 3.38–3.52 (m, 2 H) 3.53–3.65 (m, 2 H) 3.63 (s, 2 H) 4.02 (s, 2 H) 4.06 (m, 1 H) 5.04 (s, 2 H) 6.07 (t, J=8.16 Hz, 1 H) 6.86–6.94 (m, 2 H) 7.15–7.24 (m, 5 H) 7.30–7.38 (m, 2 H)
化合物159		1.39–1.66 (m, 8 H) 1.78–1.90 (m, 2 H) 2.04–2.37 (m, 6 H) 2.31 (s, 3 H) 2.33 (s, 3 H) 3.23 (s, 3 H) 3.40–3.52 (m, 2 H) 3.53–3.64 (m, 2 H) 3.60 (s, 2 H) 4.03 (s, 2 H) 4.04 (m, 1 H) 5.01 (s, 2 H) 6.07 (t, J=8.16 Hz, 1 H) 6.87–6.97 (m, 2 H) 7.03 (s, 1 H) 7.12 (m, 1 H) 7.16–7.33 (m, 4 H)
化合物160		1.39–1.66 (m, 8 H) 1.81–1.92 (m, 2 H) 2.04–2.37 (m, 6 H) 2.25 (s, 3 H) 2.27 (s, 3 H) 3.23 (s, 3 H) 3.39–3.52 (m, 2 H) 3.54–3.65 (m, 2 H) 3.63 (s, 2 H) 4.03 (s, 2 H) 4.06 (m, 1 H) 5.02 (s, 2 H) 6.07 (t, J=8.16 Hz, 1 H) 6.85–6.94 (m, 2 H) 7.11–7.24 (m, 6 H)
化合物161		1.37–1.69 (m, 8 H) 1.81–1.93 (m, 2 H) 2.07–2.27 (m, 4 H) 2.29–2.38 (m, 2 H) 2.32 (s, 6 H) 3.24 (s, 3 H) 3.40–3.53 (m, 2 H) 3.55–3.67 (m, 2 H) 3.65 (s, 2 H) 4.04 (s, 2 H) 4.08 (m, 1 H) 5.01 (s, 2 H) 6.08 (t, J=8.32 Hz, 1 H) 6.85–6.95 (m, 3 H) 7.04 (s, 2 H) 7.13–7.24 (m, 3 H)
化合物162		1.39–1.68 (m, 8 H) 1.73–1.84 (m, 2 H) 1.93–2.09 (m, 2 H) 2.18–2.30 (m, 2 H) 2.28 (s, 3 H) 2.31–2.39 (m, 2 H) 2.35 (s, 6 H) 3.23 (s, 3 H) 3.37–3.50 (m, 2 H) 3.52 (s, 2 H) 3.55–3.65 (m, 2 H) 3.95 (m, 1 H) 4.06 (s, 2 H) 5.00 (s, 2 H) 6.10 (t, J=8.32 Hz, 1 H) 6.87–6.96 (m, 3 H) 7.05 (m, 1 H) 7.18 (m, 1 H) 7.26 (m, 1 H)

27／1

表16－2

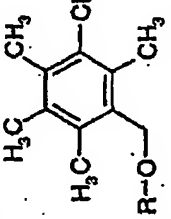
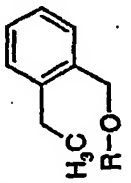
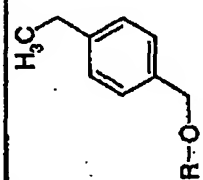
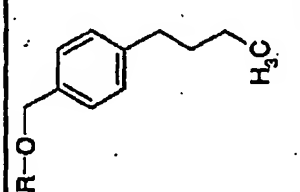
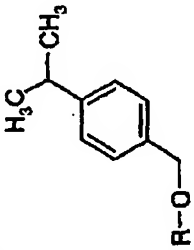
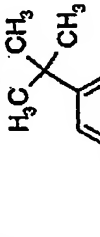
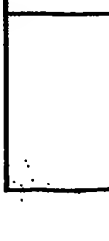
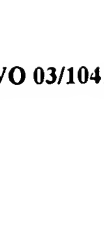
化合物163		1.40–1.67 (m, 8 H) 1.73–1.84 (m, 2 H) 1.92–2.39 (m, 6 H) 2.25 (s, 9 H) 2.31 (s, 6 H) 3.21 (s, 3 H) 3.30–3.49 (m, 2 H) 3.55 (s, 2 H) 3.53–3.63 (m, 2 H) 3.97 (m, 1 H) 4.05 (s, 2 H) 5.07 (s, 2 H) 6.10 (t, J=8.00 Hz, 1 H) 6.85 (m, 1 H) 6.94 (m, 1 H) 7.08 (m, 1 H) 7.20 (m, 1 H) 7.30 (m, 1 H)
化合物164		1.24 (t, J=7.54 Hz, 3 H) 1.39–1.66 (m, 8 H) 1.76–1.88 (m, 2 H) 2.04–2.27 (m, 4 H) 2.29–2.39 (m, 2 H) 2.72 (q, J=7.54 Hz, 2 H) 3.24 (s, 3 H) 3.38–3.50 (m, 2 H) 3.54–3.64 (m, 2 H) 3.62 (s, 2 H) 4.03 (s, 2 H) 4.04 (m, 1 H) 5.09 (s, 2 H) 6.07 (t, J=8.00 Hz, 1 H) 6.88–6.98 (m, 2 H) 7.10–7.33 (m, 6 H) 7.46 (d, J=6.68 Hz, 1 H)
化合物165		1.22 (t, J=7.54 Hz, 3 H) 1.39–1.70 (m, 8 H) 1.80–1.92 (m, 2 H) 2.08–2.27 (m, 4 H) 2.28–2.37 (m, 2 H) 2.64 (q, J=7.54 Hz, 2 H) 3.23 (s, 3 H) 3.40–3.65 (m, 4 H) 3.63 (s, 2 H) 4.01 (s, 2 H) 4.06 (m, 1 H) 5.05 (s, 2 H) 6.06 (t, J=8.32 Hz, 1 H) 6.85–6.94 (m, 2 H) 7.15–7.25 (m, 5 H) 7.33–7.40 (m, 2 H)
化合物166		0.93 (t, J=7.31 Hz, 3 H) 1.29–1.65 (m, 12 H) 1.79–1.93 (m, 2 H) 2.08–2.26 (m, 4 H) 2.28–2.38 (m, 2 H) 2.59 (t, J=7.77 Hz, 2 H) 3.23 (s, 3 H) 3.39–3.53 (m, 2 H) 3.54–3.67 (m, 2 H) 3.64 (s, 2 H) 4.01 (s, 2 H) 4.06 (m, 1 H) 5.05 (s, 2 H) 6.07 (t, J=8.16 Hz, 1 H) 6.90 (t, J=8.00 Hz, 2 H) 7.14–7.23 (m, 5 H) 7.32–7.39 (m, 2 H)
化合物167		1.24 (d, J=6.84 Hz, 6 H) 1.39–1.65 (m, 8 H) 1.80–1.92 (m, 2 H) 2.13–2.26 (m, 4 H) 2.28–2.37 (m, 2 H) 2.91 (quint, J=7.07 Hz, 1 H) 3.24 (s, 3 H) 3.41–3.67 (m, 4 H) 3.64 (s, 2 H) 4.02 (s, 2 H) 4.07 (m, 1 H) 5.06 (s, 2 H) 6.06 (t, J=8.16 Hz, 1 H) 6.86–6.94 (m, 2 H) 7.15–7.26 (m, 5 H) 7.34–7.40 (m, 2 H)

表17－1

化合物168		1.31 (s, 9 H) 1.39–1.66 (m, 8 H) 1.80–1.92 (m, 2 H) 2.14–2.36 (m, 6 H) 3.25 (s, 3 H) 3.42–3.66 (m, 4 H) 3.64 (s, 2 H) 4.02 (s, 2 H) 4.08 (m, 1 H) 5.06 (s, 2 H) 6.06 (t, J=8.32 Hz, 1 H) 6.85–6.95 (m, 2 H) 7.14–7.25 (m, 3 H) 7.34–7.43 (m, 4 H)
化合物169		1.37–1.66 (m, 8 H) 1.79–1.99 (m, 2 H) 2.06–2.25 (m, 4 H) 2.28–2.37 (m, 2 H) 3.21 (s, 3 H) 3.42–3.61 (m, 4 H) 3.64 (s, 2 H) 3.88 (s, 3 H) 3.99–4.09 (m, 3 H) 5.12 (s, 2 H) 6.07 (t, J=8.39 Hz, 1 H) 6.86–7.03 (m, 4 H) 7.10–7.24 (m, 3 H) 7.30 (t, J=6.92 Hz, 1 H) 7.49 (dd, J=7.54, 1.48 Hz, 1 H)
化合物170		1.37–1.65 (m, 8 H) 1.81–1.94 (m, 2 H) 2.07–2.27 (m, 4 H) 2.29–2.38 (m, 2 H) 3.24 (s, 3 H) 3.38–3.50 (m, 2 H) 3.56–3.67 (m, 2 H) 3.64 (s, 2 H) 3.83 (s, 3 H) 4.02 (s, 2 H) 4.06 (m, 1 H) 5.08 (s, 2 H) 6.07 (t, J=8.32 Hz, 1 H) 6.81–6.94 (m, 3 H) 6.97–7.07 (m, 2 H) 7.13–7.24 (m, 3 H) 7.31 (t, J=7.93 Hz, 1 H)
化合物171		1.38–1.67 (m, 8 H) 1.78–1.90 (m, 2 H) 2.00–2.14 (m, 2 H) 2.18–2.28 (m, 2 H) 2.30–2.38 (m, 2 H) 3.22 (s, 3 H) 3.37–3.50 (m, 2 H) 3.54–3.65 (m, 2 H) 3.62 (s, 2 H) 3.82 (s, 3 H) 4.00 (s, 2 H) 4.05 (m, 1 H) 5.01 (s, 2 H) 6.08 (t, J=8.16 Hz, 1 H) 6.80 (dd, J=9.09, 2.72 Hz, 1 H) 6.87–6.97 (m, 4 H) 7.09–7.24 (m, 2 H) 7.36–7.43 (m, 2 H)
化合物172		1.42 (t, J=6.99 Hz, 3 H) 1.37–1.65 (m, 8 H) 1.80–1.92 (m, 2 H) 2.05–2.26 (m, 4 H) 2.28–2.36 (m, 2 H) 3.21 (s, 3 H) 3.41–3.61 (m, 4 H) 3.64 (s, 2 H) 4.04 (s, 2 H) 4.10 (q, J=6.99 Hz, 2 H) 5.14 (s, 2 H) 6.07 (t, J=8.39 Hz, 1 H) 6.87–7.02 (m, 4 H) 7.10–7.26 (m, 4 H) 7.49 (dd, J=7.62, 1.40 Hz, 1 H)

28／1

表17－2

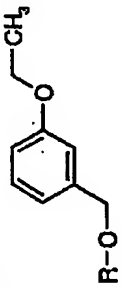
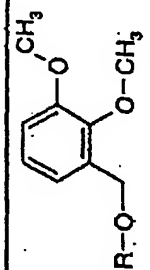
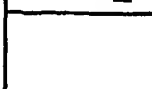
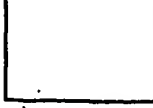
化合物173		1.40 (t, J=6.99 Hz, 3 H) 1.36–1.65 (m, 8 H) 1.81–1.93 (m, 2 H) 2.06–2.27 (m, 4 H) 2.29–2.37 (m, 2 H) 3.23 (s, 3 H) 3.39–3.50 (m, 2 H) 3.55–3.66 (m, 2 H) 3.64 (s, 2 H) 4.02 (s, 2 H) 4.05 (q, J=6.99 Hz, 2 H) 5.07 (s, 2 H) 6.07 (t, J=8.24 Hz, 1 H) 6.79–7.07 (m, 6 H) 7.13–7.23 (m, 2 H) 7.31 (m, 1 H)
化合物174		1.40 (t, J=7.54 Hz, 3 H) 1.34–1.66 (m, 8 H) 1.79–1.90 (m, 2 H) 1.99–2.13 (m, 2 H) 2.18–2.27 (m, 2 H) 2.30–2.38 (m, 2 H) 3.21 (s, 3 H) 3.37–3.50 (m, 2 H) 3.53–3.65 (m, 2 H) 3.62 (s, 2 H) 4.00 (s, 2 H) 4.04 (q, J=7.54 Hz, 2 H) 5.01 (s, 2 H) 6.07 (t, J=8.32 Hz, 1 H) 6.78 (m, 1 H) 6.86–7.24 (m, 7H) 7.37 (m, 1 H)
化合物175		0.98 (t, J=7.31 Hz, 3 H) 1.40–1.66 (m, 10 H) 1.68–1.90 (m, 4 H) 1.97–2.15 (m, 2 H) 2.18–2.28 (m, 2 H) 2.29–2.39 (m, 2 H) 3.21 (s, 3 H) 3.38 (m, 2 H) 3.53 (m, 2 H) 3.62 (s, 2 H) 3.95–4.09 (m, 5 H) 5.01 (s, 2 H) 6.07 (t, J=8.39 Hz, 1 H) 6.78 (m, 1 H) 7.06–7.25 (m, 7 H) 7.37 (m, 1 H)
化合物176		1.36–1.49 (m, 4 H) 1.50–1.66 (m, 4 H) 1.84–1.96 (m, 2 H) 2.08–2.28 (m, 4 H) 2.29–2.39 (m, 2 H) 3.25 (s, 3 H) 3.38–3.51 (m, 2 H) 3.59–3.68 (m, 2 H) 3.64 (s, 2 H) 3.81 (s, 6 H) 4.03 (s, 2 H) 4.08 (m, 1 H) 5.05 (s, 2 H) 6.08 (t, J=8.32 Hz, 1 H) 6.39 (t, J=2.25 Hz, 1 H) 6.59 (d, J=2.25 Hz, 2 H) 6.86–6.94 (m, 2 H) 7.12–7.24 (m, 3 H)
化合物177		1.38–1.51 (m, 4 H) 1.52–1.66 (m, 4 H) 1.77–1.90 (m, 2 H) 2.02–2.15 (m, 2 H) 2.19–2.29 (m, 2 H) 2.29–2.38 (m, 2 H) 3.24 (s, 3 H) 3.32–3.47 (m, 2 H) 3.58–3.69 (m, 2 H) 3.65 (s, 2 H) 3.89 (s, 3 H) 3.93 (s, 3 H) 3.97 (s, 2 H) 4.03 (m, 1 H) 5.03 (s, 2 H) 6.07 (t, J=8.16 Hz, 1 H) 6.84–6.96 (m, 4 H) 6.98–7.05 (m, 2 H) 7.13 (m, 1 H) 7.22 (m, 1 H)

表18－1

化合物178		1.35–1.72 (m, 8 H) 1.78–1.92 (m, 2 H) 2.00–2.28 (m, 4 H) 2.29–2.40 (m, 2 H) 3.29 (s, 3 H) 3.37–3.53 (m, 2 H) 3.59 (s, 2 H) 3.55–3.70 (m, 2 H) 3.87 (s, 3 H) 3.92 (s, 3 H) 4.01 (m, 1 H) 4.12 (s, 2 H) 5.12 (s, 2 H) 6.11 (t, J=8.24 Hz, 1 H) 6.87–7.07 (m, 4 H) 7.07–7.18 (m, 2 H) 7.18–7.30 (m, 2 H)
化合物179		1.36–1.73 (m, 8 H) 1.83–1.98 (m, 2 H) 2.05–2.28 (m, 4 H) 2.28–2.39 (m, 2 H) 3.23 (s, 3 H) 3.42–3.71 (m, 4 H) 3.63 (s, 2 H) 3.77 (s, 3 H) 3.84 (s, 3 H) 4.01 (m, 1 H) 4.07 (s, 2 H) 5.11 (s, 2 H) 6.08 (t, J=8.00 Hz, 1 H) 6.75–7.11 (m, 6 H) 7.15–7.26 (m, 2 H)
化合物180		1.45 (t, J=6.92 Hz, 3 H) 1.38–1.72 (m, 8 H) 1.76–1.92 (m, 2 H) 2.01–2.16 (m, 2 H) 2.18–2.44 (m, 4 H) 3.23 (s, 3 H) 3.35–3.49 (m, 2 H) 3.56–3.70 (m, 2 H) 3.65 (s, 2 H) 3.91 (s, 3 H) 3.71–4.16 (m, 3 H) 3.98 (s, 2 H) 5.02 (s, 2 H) 6.08 (t, J=8.24 Hz, 1 H) 6.64–7.25 (m, 8 H)
化合物181		1.38 (t, J=6.99 Hz, 6 H) 1.30–1.71 (m, 8 H) 1.83 (m, 2 H) 2.07–2.28 (m, 4 H) 2.28–2.39 (m, 2 H) 3.24 (s, 3 H) 3.38–3.51 (m, 2 H) 3.56–3.69 (m, 2 H) 3.64 (s, 2 H) 4.03 (q, J=6.99 Hz, 4 H) 4.03 (s, 2 H) 4.03 (m, 1 H) 5.03 (s, 2 H) 6.07 (t, J=8.16 Hz, 1 H) 6.37 (t, J=2.26 Hz, 1 H) 6.56 (d, J=2.26 Hz, 2 H) 6.83–6.95 (m, 2 H) 7.10–7.26 (m, 3 H)
化合物182		1.38–1.75 (m, 8 H) 1.75–1.96 (m, 2 H) 2.02–2.19 (m, 2 H) 2.19–2.30 (m, 2 H) 2.30–2.42 (m, 2 H) 3.24 (s, 3 H) 3.29–3.42 (m, 2 H) 3.61–3.76 (m, 2 H) 3.69 (s, 2 H) 3.83 (s, 3 H) 3.90 (s, 6 H) 3.92 (s, 2 H) 4.07 (m, 1 H) 5.02 (s, 2 H) 6.06 (t, J=8.32 Hz, 1 H) 6.72 (s, 2 H) 6.87–6.96 (m, 2 H) 7.15–7.25 (m, 2 H) 7.30 (m, 1 H)

29／1

表18－2

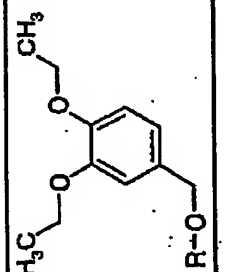
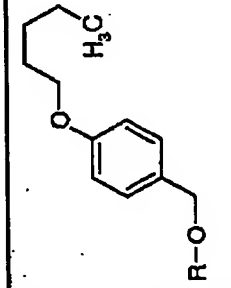
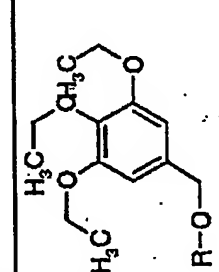
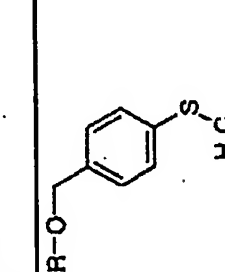
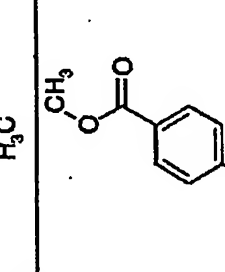
化合物183		1.34–1.72 (m, 14 H) 1.76–1.92 (m, 2 H) 1.92–2.17 (m, 2 H) 2.17–2.45 (m, 4 H) 3.22 (s, 3 H) 3.35–3.51 (m, 2 H) 3.55–3.68 (m, 2 H) 3.63 (s, 2 H) 3.85–4.31 (m, 7 H) 5.01 (s, 2 H) 6.08 (t, J=8.24 Hz, 1 H) 6.63–7.11 (m, 6 H) 7.16–7.26 (m, 2 H)
化合物184		0.94 (t, J=6.99 Hz, 3 H) 1.30–2.42 (m, 22 H) 3.22 (s, 3 H) 3.38–3.53 (m, 2 H) 3.53–3.67 (m, 2 H) 3.63 (s, 2 H) 3.96 (t, J=6.68 Hz, 2 H) 4.00 (s, 2 H) 4.04 (m, 1 H) 5.01 (s, 2 H) 6.08 (t, J=8.32 Hz, 1 H) 6.74–7.28 (m, 7 H) 7.33–7.43 (m, 2 H)
化合物185		1.35 (t, J=7.06 Hz, 3 H) 1.41 (t, J=6.90 Hz, 6 H) 1.22–1.72 (m, 8 H) 1.74–1.94 (m, 2 H) 1.96–2.16 (m, 2 H) 2.16–2.42 (m, 4 H) 3.23 (s, 3 H) 3.29–3.43 (m, 2 H) 3.54–3.71 (m, 2 H) 3.66 (s, 2 H) 3.95 (s, 2 H) 4.05 (q, J=7.06 Hz, 2 H) 4.08 (m, 1 H) 4.11 (q, J=6.90 Hz, 4 H) 4.99 (s, 2 H) 6.08 (t, J=8.24 Hz, 1 H) 6.68 (s, 2 H) 6.87–6.96 (m, 2 H) 7.15–7.26 (m, 3 H)
化合物186		1.36–1.70 (m, 8 H) 1.72–1.86 (m, 2 H) 1.97–2.17 (m, 2 H) 2.17–2.41 (m, 4 H) 2.49 (s, 3 H) 3.23 (s, 3 H) 3.32–2.46 (m, 2 H) 3.51–3.67 (m, 2 H) 3.64 (s, 2 H) 3.95 (s, 2 H) 4.06 (m, 1 H) 5.01 (s, 2 H) 6.05 (t, J=8.24 Hz, 1 H) 6.83–6.94 (m, 2 H) 7.12–7.33 (m, 5 H) 7.41 (d, J=8.39 Hz, 2 H)
化合物187		1.36–1.67 (m, 8 H) 1.81–1.97 (m, 2 H) 2.17–2.40 (m, 6 H) 3.30 (s, 3 H) 3.35–3.49 (m, 2 H) 3.63–3.78 (m, 2 H) 3.71 (s, 2 H) 3.91 (s, 3 H) 3.97 (s, 2 H) 4.14 (m, 1 H) 5.16 (s, 2 H) 6.07 (t, J=8.16 Hz, 1 H) 6.83–6.95 (m, 2 H) 7.15–7.25 (m, 2 H) 7.42 (m, 1 H) 7.55 (d, J=8.32 Hz, 2 H) 8.03 (d, J=8.32 Hz, 2 H)

表19

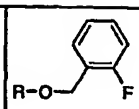
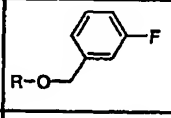
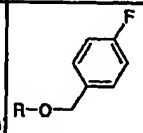
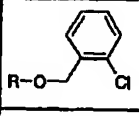
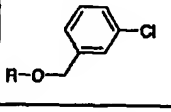
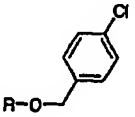
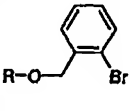
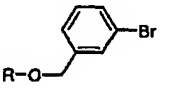
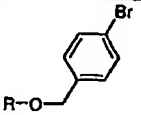
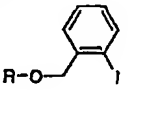
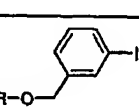
化合物188		1.35-1.72 (m, 8 H) 1.82-1.97 (m, 2 H) 2.15-2.40 (m, 6 H) 3.28 (s, 3 H) 3.43-3.72 (m, 4 H) 3.63 (s, 2 H) 4.04 (s, 2 H) 4.09 (m, 1 H) 5.15 (s, 2 H) 6.08 (t, J=8.24 Hz, 1 H) 6.86-6.98 (m, 2 H) 7.10 (ddd, J=10.10, 8.24, 1.25 Hz, 1 H) 7.15-7.26 (m, 4 H) 7.32 (m, 1 H) 7.58 (td, J=7.50, 1.79 Hz, 1 H)
化合物189		1.35-1.71 (m, 8 H) 1.83-1.99 (m, 2 H) 2.15-2.40 (m, 6 H) 3.30 (s, 3 H) 3.39-3.55 (m, 2 H) 3.55-3.73 (m, 2 H) 3.67 (s, 2 H) 4.00 (s, 2 H) 4.14 (m, 1 H) 5.10 (s, 2 H) 6.07 (t, J=8.16 Hz, 1 H) 6.82-7.02 (m, 3 H) 7.13-7.28 (m, 4 H) 7.31-7.41 (m, 2 H)
化合物190		1.36-1.73 (m, 8 H) 1.78-1.92 (m, 2 H) 2.13-2.42 (m, 6 H) 3.27 (s, 3 H) 3.37-3.53 (m, 2 H) 3.56-3.72 (m, 2 H) 3.65 (s, 2 H) 3.97 (s, 2 H) 4.12 (m, 1 H) 5.05 (s, 2 H) 6.06 (t, J=8.16 Hz, 1 H) 6.85-6.94 (m, 2 H) 7.03-7.13 (m, 2 H) 7.15-7.24 (m, 2 H) 7.39 (m, 1 H) 7.42-7.51 (m, 2 H)
化合物191		1.35-1.72 (m, 8 H) 1.83-1.97 (m, 2 H) 2.15-2.41 (m, 6 H) 3.27 (s, 3 H) 3.42-3.56 (m, 2 H) 3.56-3.73 (m, 2 H) 3.68 (s, 2 H) 4.02 (s, 2 H) 4.12 (m, 1 H) 5.17 (s, 2 H) 6.07 (t, J=8.24 Hz, 1 H) 6.86-6.97 (m, 2 H) 7.15-7.42 (m, 6 H) 7.63 (dd, J=7.54, 1.32 Hz, 1 H)
化合物192		1.35-1.73 (m, 8 H) 1.82-1.97 (m, 2 H) 2.16-2.42 (m, 6 H) 3.28 (s, 3 H) 3.40-3.56 (m, 2 H) 3.56-3.72 (m, 2 H) 3.65 (s, 2 H) 4.00 (s, 2 H) 4.13 (m, 1 H) 5.08 (s, 2 H) 6.07 (t, J=8.16 Hz, 1 H) 6.82-6.96 (m, 2 H) 7.13-7.45 (m, 7 H)
化合物193		1.35-1.71 (m, 8 H) 1.83-1.98 (m, 2 H) 2.15-2.40 (m, 6 H) 3.27 (s, 3 H) 3.41-3.57 (m, 2 H) 3.57-3.72 (m, 2 H) 3.68 (s, 2 H) 4.02 (s, 2 H) 4.12 (m, 1 H) 5.17 (s, 2 H) 6.07 (t, J=8.16 Hz, 1 H) 6.86-6.96 (m, 2 H) 7.14-7.41 (m, 6 H) 7.63 (dd, J=7.69, 1.63 Hz, 1 H)
化合物194		1.35-1.72 (m, 8 H) 1.83-1.97 (m, 2 H) 2.15-2.40 (m, 6 H) 3.27 (s, 3 H) 3.42-3.57 (m, 2 H) 3.57-3.72 (m, 2 H) 3.69 (s, 2 H) 4.02 (s, 2 H) 4.13 (m, 1 H) 5.13 (s, 2 H) 6.07 (t, J=8.24 Hz, 1 H) 6.84-6.97 (m, 2 H) 7.14-7.26 (m, 3 H) 7.31-7.44 (m, 2 H) 7.56 (dd, J=8.00, 1.17 Hz, 1 H) 7.62 (dd, J=7.77, 1.55 Hz, 1 H)
化合物195		1.35-1.72 (m, 8 H) 1.82-1.96 (m, 2 H) 2.16-2.41 (m, 6 H) 3.28 (s, 3 H) 3.40-3.56 (m, 2 H) 3.56-3.72 (m, 2 H) 3.64 (s, 2 H) 4.00 (s, 2 H) 4.13 (m, 1 H) 5.07 (s, 2 H) 6.07 (t, J=8.24 Hz, 1 H) 6.82-6.96 (m, 2 H) 7.13-7.23 (m, 2 H) 7.28-7.36 (m, 2 H) 7.38-7.46 (m, 2 H) 7.56 (t, J=1.71 Hz, 1 H)
化合物196		1.36-1.71 (m, 8 H) 1.74-1.88 (m, 2 H) 2.04-2.43 (m, 6 H) 3.28 (s, 3 H) 3.32-3.47 (m, 2 H) 3.55-3.72 (m, 2 H) 3.66 (s, 2 H) 3.94 (s, 2 H) 4.11 (m, 1 H) 5.01 (s, 2 H) 6.06 (t, J=8.16 Hz, 1 H) 6.82-6.95 (m, 2 H) 7.15-7.25 (m, 2 H) 7.36-7.57 (m, 5 H)
化合物197		1.36-1.68 (m, 8 H) 1.84-1.98 (m, 2 H) 2.17-2.40 (m, 6 H) 3.27 (s, 3 H) 3.42-3.56 (m, 2 H) 3.58-3.73 (m, 2 H) 3.70 (s, 2 H) 4.01 (s, 2 H) 4.12 (m, 1 H) 5.06 (s, 2 H) 6.08 (t, J=8.24 Hz, 1 H) 6.86-6.98 (m, 2 H) 7.03 (ddd, J=7.92, 7.46, 1.65 Hz, 1 H) 7.19-7.30 (m, 3 H) 7.43 (ddd, J=7.78, 7.46, 1.05 Hz, 1 H) 7.57 (dd, J=7.78, 1.65 Hz, 1 H) 7.85 (dd, J=7.92, 1.05 Hz, 1 H)
化合物198		1.35-1.74 (m, 8 H) 1.82-1.97 (m, 2 H) 2.15-2.40 (m, 6 H) 3.28 (s, 3 H) 3.41-3.56 (m, 2 H) 3.63 (s, 2 H) 3.56-3.71 (m, 2 H) 4.02 (s, 2 H) 4.12 (m, 1 H) 5.04 (s, 2 H) 6.08 (t, J=8.32 Hz, 1 H) 6.82-6.95 (m, 2 H) 7.12-7.34 (m, 4 H) 7.47 (d, J=7.77 Hz, 1 H) 7.62 (d, J=7.93 Hz, 1 H) 7.75 (s, 1 H)

表20

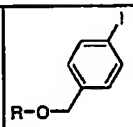
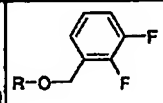
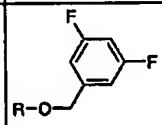
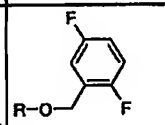
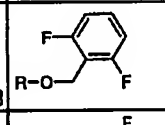
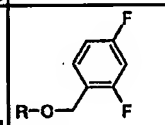
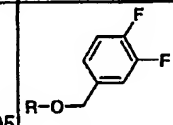
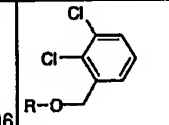
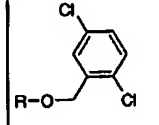
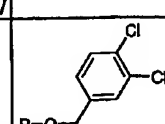
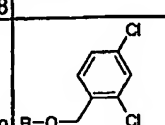
化合物199		1.36-1.97 (m, 10 H) 2.00-2.24 (m, 6 H) 3.29 (s, 3 H) 3.32-3.46 (m, 2 H) 3.56-3.73 (m, 2 H) 3.66 (s, 2 H) 3.94 (s, 2 H) 4.11 (m, 1 H) 5.00 (s, 2 H) 6.06 (t, J=8.24 Hz, 1 H) 6.81-6.94 (m, 2 H) 7.13-7.24 (m, 2 H) 7.27 (d, J=8.24 Hz, 2 H) 7.48 (m, 1 H) 7.72 (d, J=8.24 Hz, 2 H)
化合物200		1.35-1.67 (m, 8 H) 1.85-2.00 (m, 2 H) 2.16-2.41 (m, 6 H) 3.31 (s, 3 H) 3.42-3.57 (m, 2 H) 3.57-3.73 (m, 2 H) 3.65 (s, 2 H) 4.02 (s, 2 H) 4.14 (m, 1 H) 5.18 (s, 2 H) 6.09 (t, J=8.39 Hz, 1 H) 6.86-6.97 (m, 2 H) 7.07-7.26 (m, 4 H) 7.30 (m, 1 H) 7.37 (m, 1 H)
化合物201		1.35-1.72 (m, 8 H) 1.88-2.05 (m, 2 H) 2.12-2.29 (m, 2 H) 2.29-2.50 (m, 4 H) 3.35 (s, 3 H) 3.39-3.55 (m, 2 H) 3.69 (s, 2 H) 3.61-3.79 (m, 2 H) 4.02 (s, 2 H) 4.20 (m, 1 H) 5.11 (s, 2 H) 6.08 (t, J=8.16 Hz, 1 H) 6.71 (tt, J=8.92, 2.33 Hz, 1 H) 6.82 (dd, J=8.08, 0.93 Hz, 1 H) 6.91 (td, J=7.46, 0.93 Hz, 1 H) 6.98 (dd, J=8.01, 2.33 Hz, 2 H) 7.18 (ddd, J=8.08, 7.46, 1.64 Hz, 1 H) 7.23 (dd, J=7.46, 1.64 Hz, 1 H) 7.48 (m, 1 H)
化合物202		1.35-1.71 (m, 8 H) 1.90-2.05 (m, 2 H) 2.14-2.29 (m, 2 H) 2.29-2.48 (m, 4 H) 3.34 (s, 3 H) 3.43-3.60 (m, 2 H) 3.67 (s, 2 H) 3.60-3.78 (m, 2 H) 4.04 (s, 2 H) 4.17 (m, 1 H) 5.14 (s, 2 H) 6.09 (t, J=8.24 Hz, 1 H) 6.83-7.10 (m, 4 H) 7.14-7.34 (m, 3 H) 7.40 (m, 1 H)
化合物203		1.36-1.72 (m, 8 H) 1.83-1.98 (m, 2 H) 2.07-2.29 (m, 4 H) 2.29-2.41 (m, 2 H) 3.27 (s, 3 H) 3.52 (s, 2 H) 3.49-3.68 (m, 4 H) 4.01 (m, 1 H) 4.12 (s, 2 H) 5.15 (s, 2 H) 6.11 (t, J=8.00 Hz, 1 H) 6.79 (m, 1 H) 6.89-7.09 (m, 4 H) 7.17-7.30 (m, 2 H) 7.39 (m, 1 H)
化合物204		1.35-1.72 (m, 8 H) 1.84-1.98 (m, 2 H) 2.16-2.43 (m, 6 H) 3.31 (s, 3 H) 3.41-3.57 (m, 2 H) 3.65 (s, 2 H) 3.57-3.73 (m, 2 H) 4.01 (s, 2 H) 4.14 (m, 1 H) 5.11 (s, 2 H) 6.08 (t, J=8.24 Hz, 1 H) 6.83 (ddd, J=10.18, 8.86, 2.56 Hz, 1 H) 6.88-7.02 (m, 3 H) 7.16-7.25 (m, 2 H) 7.36 (m, 1 H) 7.62 (td, J=8.47, 6.68 Hz, 1 H)
化合物205		1.36-1.70 (m, 8 H) 1.86-2.01 (m, 2 H) 2.17-2.45 (m, 6 H) 3.33 (s, 3 H) 3.40-3.54 (m, 2 H) 3.68 (s, 2 H) 3.60-3.77 (m, 2 H) 3.99 (s, 2 H) 4.18 (m, 1 H) 5.05 (s, 2 H) 6.08 (t, J=8.16 Hz, 1 H) 6.85 (d, J=8.08 Hz, 1 H) 6.91 (td, J=7.38, 0.93 Hz, 1 H) 7.13-7.25 (m, 4 H) 7.30 (m, 1 H) 7.48 (m, 1 H)
化合物206		1.37-1.73 (m, 8 H) 1.86-2.07 (m, 2 H) 2.07-2.45 (m, 6 H) 3.31 (s, 3 H) 3.40-3.54 (m, 2 H) 3.63-3.77 (m, 2 H) 3.71 (s, 2 H) 3.99 (s, 2 H) 4.17 (m, 1 H) 5.19 (s, 2 H) 6.08 (t, J=8.16 Hz, 1 H) 6.87 (d, J=8.39 Hz, 1 H) 6.94 (t, J=7.46 Hz, 1 H) 7.15-7.45 (m, 5 H) 7.59 (d, J=7.77 Hz, 1 H)
化合物207		1.36-1.71 (m, 8 H) 1.90-2.06 (m, 2 H) 2.15-2.29 (m, 2 H) 2.29-2.51 (m, 4 H) 3.33 (s, 3 H) 3.45-3.61 (m, 2 H) 3.61-3.76 (m, 2 H) 3.69 (s, 2 H) 4.04 (s, 2 H) 4.17 (m, 1 H) 5.15 (s, 2 H) 6.09 (t, J=8.24 Hz, 1 H) 6.85 (dd, J=8.08, 0.47 Hz, 1 H) 6.93 (td, J=7.38, 0.93 Hz, 1 H) 7.16-7.28 (m, 3 H) 7.32 (d, J=8.39 Hz, 1 H) 7.37 (m, 1 H) 7.57 (d, J=2.49 Hz, 1 H)
化合物208		1.36-1.73 (m, 8 H) 1.81-1.96 (m, 2 H) 2.16-2.42 (m, 6 H) 3.31 (s, 3 H) 3.36-3.51 (m, 2 H) 3.59-3.74 (m, 2 H) 3.67 (s, 2 H) 3.97 (s, 2 H) 4.15 (m, 1 H) 5.04 (s, 2 H) 6.07 (t, J=8.16 Hz, 1 H) 6.84 (d, J=8.08 Hz, 1 H) 6.91 (td, J=7.46, 0.93 Hz, 1 H) 7.14-7.24 (m, 2 H) 7.40 (dd, J=8.32, 1.94 Hz, 1 H) 7.44-7.55 (m, 3 H)
化合物209		1.37-1.66 (m, 8 H) 1.86-2.04 (m, 2 H) 2.19-2.45 (m, 6 H) 3.31 (s, 3 H) 3.35-3.51 (m, 2 H) 3.73 (s, 2 H) 3.70-3.84 (m, 2 H) 3.93 (s, 2 H) 4.17 (m, 1 H) 5.15 (s, 2 H) 6.08 (t, J=8.16 Hz, 1 H) 6.84-6.98 (m, 2 H) 7.16-7.42 (m, 5 H) 7.66 (d, J=8.55 Hz, 1 H)

表21

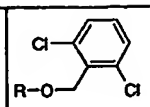
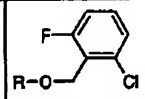
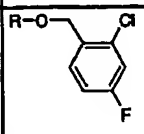
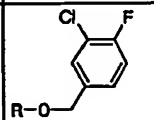
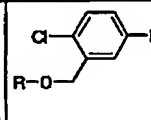
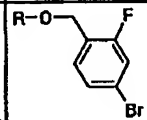
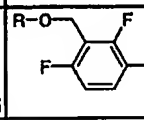
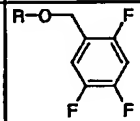
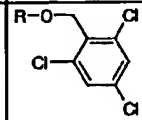
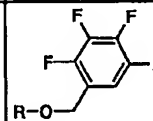
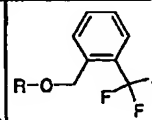
化合物210		1.35-1.68 (m, 8 H) 1.80-1.94 (m, 2 H) 2.00-2.28 (m, 4 H) 2.28-2.39 (m, 2 H) 3.25 (s, 3 H) 3.54 (s, 2 H) 3.45-3.65 (m, 4 H) 3.98 (m, 1 H) 4.11 (s, 2 H) 5.29 (s, 2 H) 6.11 (t, J=8.08 Hz, 1 H) 6.76 (m, 1 H) 6.97 (td, J=7.42, 1.01 Hz, 1 H) 7.10 (d, J=8.24 Hz, 1 H) 7.18-7.45 (m, 5 H)
化合物211		1.34-1.67 (m, 8 H) 1.81-1.96 (m, 2 H) 2.04-2.27 (m, 4 H) 2.29-2.41 (m, 2 H) 3.26 (s, 3 H) 3.53 (s, 2 H) 3.50-3.64 (m, 4 H) 3.99 (m, 1 H) 4.11 (s, 2 H) 5.20 (s, 2 H) 6.11 (t, J=8.24 Hz, 1 H) 6.80 (m, 1 H) 6.95 (t, J=7.46 Hz, 1 H) 7.05-7.43 (m, 6 H)
化合物212		1.40-1.74 (m, 8 H) 1.85-2.06 (m, 2 H) 2.19-2.48 (m, 6 H) 3.32 (s, 3 H) 3.41-3.55 (m, 2 H) 3.71 (s, 2 H) 3.65-3.77 (m, 2 H) 3.98 (s, 2 H) 4.18 (m, 1 H) 5.14 (s, 2 H) 6.08 (t, J=8.39 Hz, 1 H) 6.85-6.98 (m, 2 H) 7.05-7.17 (m, 2 H) 7.17-7.31 (m, 2 H) 7.40 (m, 1 H) 7.67 (dd, J=8.32, 5.98 Hz, 1 H)
化合物213		1.34-1.65 (m, 8 H) 1.86-2.00 (m, 2 H) 2.16-2.42 (m, 6 H) 3.30 (s, 3 H) 3.40-3.57 (m, 2 H) 3.65 (s, 2 H) 3.60-3.73 (m, 2 H) 4.02 (s, 2 H) 4.14 (m, 1 H) 5.16 (s, 2 H) 6.08 (t, J=8.08 Hz, 1 H) 6.88-6.97 (m, 2 H) 7.14-7.26 (m, 3 H) 7.30-7.40 (m, 2 H) 7.52 (m, 1 H)
化合物214		1.36-1.66 (m, 8 H) 1.89-2.05 (m, 2 H) 2.16-2.51 (m, 6 H) 3.31 (s, 3 H) 3.45-3.72 (m, 4 H) 3.67 (s, 2 H) 4.05 (s, 2 H) 4.17 (m, 1 H) 5.15 (s, 2 H) 6.08 (t, J=8.32 Hz, 1 H) 6.86 (d, J=8.08 Hz, 1 H) 6.93 (td, J=7.46, 0.93 Hz, 1 H) 7.14-7.29 (m, 3 H) 7.32-7.40 (m, 2 H) 7.70 (d, J=2.33 Hz, 1 H)
化合物215		1.35-1.65 (m, 8 H) 1.80-1.99 (m, 2 H) 2.17-2.46 (m, 6 H) 3.31 (s, 3 H) 3.40-3.54 (m, 2 H) 3.66 (s, 2 H) 3.59-3.74 (m, 2 H) 3.99 (s, 2 H) 4.14 (m, 1 H) 5.09 (s, 2 H) 6.08 (t, J=8.16 Hz, 1 H) 6.83-6.97 (m, 2 H) 7.12-7.28 (m, 3 H) 7.38 (dd, J=8.24, 1.86 Hz, 1 H) 7.44 (m, 1 H) 7.57 (t, J=8.00 Hz, 1 H)
化合物216		1.36-1.67 (m, 8 H) 1.87-2.02 (m, 2 H) 2.16-2.41 (m, 6 H) 3.29 (s, 3 H) 3.54 (s, 2 H) 3.50-3.71 (m, 4 H) 4.08 (s, 2 H) 4.08 (m, 1 H) 5.16 (s, 2 H) 6.11 (t, J=8.32 Hz, 1 H) 6.89-7.08 (m, 4 H) 7.13-7.29 (m, 3 H)
化合物217		1.32-1.66 (m, 8 H) 1.87-2.08 (m, 2 H) 2.15-2.30 (m, 2 H) 2.31-2.54 (m, 4 H) 3.37 (s, 3 H) 3.43-3.60 (m, 2 H) 3.68 (s, 2 H) 3.66-3.80 (m, 2 H) 4.03 (s, 2 H) 4.20 (m, 1 H) 5.11 (s, 2 H) 6.09 (t, J=8.00 Hz, 1 H) 6.83-7.01 (m, 3 H) 7.15-7.27 (m, 2 H) 7.40-7.56 (m, 2 H)
化合物218		1.37-1.67 (m, 8 H) 1.85-1.99 (m, 2 H) 2.19-2.42 (m, 6 H) 3.28 (s, 3 H) 3.49-3.64 (m, 4 H) 3.56 (s, 2 H) 4.05 (m, 1 H) 4.07 (s, 2 H) 5.24 (s, 2 H) 6.11 (t, J=8.16 Hz, 1 H) 6.89 (m, 1 H) 6.97 (td, J=7.42, 1.01 Hz, 1 H) 7.06 (d, J=7.77 Hz, 1 H) 7.19-7.32 (m, 2 H) 7.41 (s, 2 H)
化合物219		1.39-1.71 (m, 8 H) 1.92-2.09 (m, 2 H) 2.17-2.30 (m, 2 H) 2.33-2.57 (m, 4 H) 3.39 (s, 3 H) 3.41-3.56 (m, 2 H) 3.70 (s, 2 H) 3.71-3.87 (m, 2 H) 4.02 (s, 2 H) 4.22 (m, 1 H) 5.16 (s, 2 H) 6.10 (t, J=8.32 Hz, 1 H) 6.85 (d, J=8.24 Hz, 1 H) 6.94 (t, J=7.38 Hz, 1 H) 7.21 (td, J=7.85, 1.55 Hz, 1 H) 7.25-7.40 (m, 2 H) 7.57 (m, 1 H)
化合物220		1.34-1.68 (m, 8 H) 1.85-2.01 (m, 2 H) 2.14-2.44 (m, 6 H) 3.29 (s, 3 H) 3.40-3.56 (m, 2 H) 3.59-3.74 (m, 2 H) 3.71 (s, 2 H) 4.01 (s, 2 H) 4.15 (m, 1 H) 5.28 (s, 2 H) 6.07 (t, J=8.24 Hz, 1 H) 6.83 (d, J=7.93 Hz, 1 H) 6.92 (t, J=7.46 Hz, 1 H) 7.14-7.27 (m, 2 H) 7.35-7.46 (m, 2 H) 7.61-7.69 (m, 2 H) 7.84 (d, J=8.08 Hz, 1 H)

表22

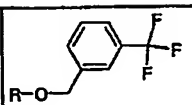
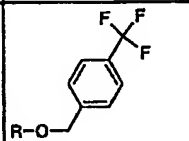
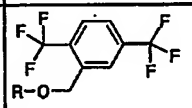
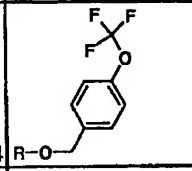
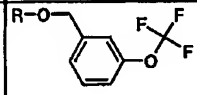
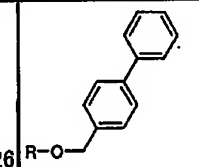
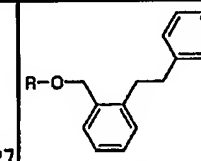
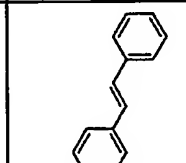
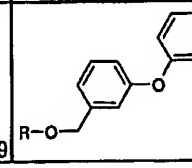
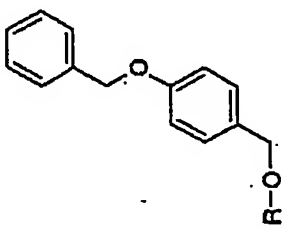
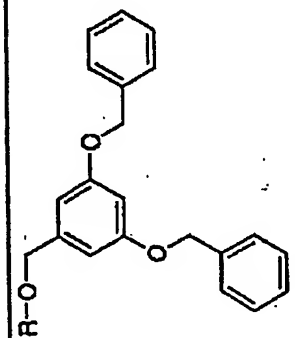
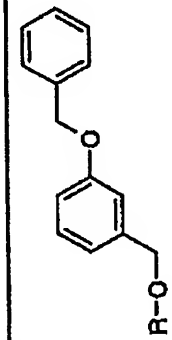
化合物221		1.36-1.68 (m, 8 H) 1.79-1.95 (m, 2 H) 2.15-2.39 (m, 6 H) 3.28 (s, 3 H) 3.37-3.54 (m, 2 H) 3.57-3.70 (m, 2 H) 3.67 (s, 2 H) 3.98 (s, 2 H) 4.12 (m, 1 H) 5.15 (s, 2 H) 6.07 (t, J=8.08 Hz, 1 H) 6.84-6.96 (m, 2 H) 7.16-7.25 (m, 2 H) 7.36 (m, 1 H) 7.53-7.61 (m, 2 H) 7.65 (s, 1 H) 7.74 (m, 1 H)
化合物222		1.36-1.64 (m, 8 H) 1.74-1.91 (m, 2 H) 2.09-2.41 (m, 6 H) 3.28 (s, 3 H) 3.30-3.46 (m, 2 H) 3.58-3.73 (m, 2 H) 3.70 (s, 2 H) 3.93 (s, 2 H) 4.15 (m, 1 H) 5.14 (s, 2 H) 6.05 (t, J=8.32 Hz, 1 H) 6.86 (d, J=8.24 Hz, 1 H) 6.91 (t, J=7.46 Hz, 1 H) 7.15-7.26 (m, 2 H) 7.54 (m, 1 H) 7.60-7.70 (m, 4 H)
化合物223		1.35-1.67 (m, 8 H) 1.89-2.09 (m, 2 H) 2.15-2.58 (m, 6 H) 3.36 (s, 3 H) 3.43-3.56 (m, 2 H) 3.62-3.76 (m, 2 H) 3.72 (s, 2 H) 4.05 (s, 2 H) 4.17 (m, 1 H) 5.35 (s, 2 H) 6.10 (t, J=8.16 Hz, 1 H) 6.82 (d, J=8.24 Hz, 1 H) 6.94 (dd, J=7.62, 7.30 Hz, 1 H) 7.19 (ddd, J=8.24, 7.62, 1.55 Hz, 1 H) 7.29 (dd, J=7.30, 1.55 Hz, 1 H) 7.39 (m, 1 H) 7.68 (d, J=8.08 Hz, 1 H) 7.83 (d, J=8.08 Hz, 1 H) 8.11 (s, 1 H)
化合物224		1.36-1.70 (m, 8 H) 1.75-1.91 (m, 2 H) 2.15-2.41 (m, 6 H) 3.28 (s, 3 H) 3.35-3.49 (m, 2 H) 3.57-3.70 (m, 2 H) 3.68 (s, 2 H) 3.95 (s, 2 H) 4.14 (m, 1 H) 5.08 (s, 2 H) 6.05 (t, J=8.24 Hz, 1 H) 6.84-6.96 (m, 2 H) 7.16-7.28 (m, 4 H) 7.47 (m, 1 H) 7.54 (d, J=8.55 Hz, 2 H)
化合物225		1.36-1.70 (m, 8 H) 1.80-1.97 (m, 2 H) 2.14-2.42 (m, 6 H) 3.29 (s, 3 H) 3.37-3.54 (m, 2 H) 3.57-3.70 (m, 2 H) 3.67 (s, 2 H) 4.00 (s, 2 H) 4.14 (m, 1 H) 5.12 (s, 2 H) 6.07 (t, J=8.16 Hz, 1 H) 6.86 (d, J=8.08 Hz, 1 H) 6.91 (t, J=7.46 Hz, 1 H) 7.11-7.28 (m, 4 H) 7.35 (m, 1 H) 7.42-7.50 (m, 2 H)
化合物226		1.30-1.63 (m, 8 H) 1.70-1.85 (m, 2 H) 2.01-2.25 (m, 6 H) 3.12 (s, 3 H) 3.26-3.42 (m, 2 H) 3.44-3.58 (m, 2 H) 3.66 (s, 2 H) 3.87 (s, 2 H) 4.07 (m, 1 H) 5.09 (s, 2 H) 5.95 (t, J=8.24 Hz, 1 H) 6.84-6.97 (m, 2 H) 7.16-7.25 (m, 2 H) 7.30-7.39 (m, 2 H) 7.44 (t, J=7.54 Hz, 2 H) 7.54 (d, J=8.24 Hz, 2 H) 7.57-7.67 (m, 4 H)
化合物227		1.36-1.69 (m, 8 H) 1.72-1.87 (m, 2 H) 2.00-2.39 (m, 6 H) 2.85-3.05 (m, 4 H) 3.21 (s, 3 H) 3.32-3.48 (m, 2 H) 3.50-3.64 (m, 2 H) 3.60 (s, 2 H) 3.98 (m, 1 H) 4.01 (s, 2 H) 4.97 (s, 2 H) 6.06 (t, J=8.32 Hz, 1 H) 6.84 (d, J=7.93 Hz, 1 H) 6.91 (t, J=7.46 Hz, 1 H) 7.05 (m, 1 H) 7.10-7.32 (m, 10 H) 7.44 (m, 1 H)
化合物228		1.33-1.62 (m, 8 H) 1.69-1.85 (m, 2 H) 1.94-2.28 (m, 6 H) 3.17 (s, 3 H) 3.26-3.43 (m, 2 H) 3.55-3.68 (m, 2 H) 3.66 (s, 2 H) 3.86 (s, 2 H) 4.04 (m, 1 H) 5.07 (s, 2 H) 5.96 (t, J=8.00 Hz, 1 H) 6.93 (d, J=7.77 Hz, 2 H) 7.15 (d, J=3.89 Hz, 2 H) 7.17-7.32 (m, 4 H) 7.37 (t, J=7.38 Hz, 2 H) 7.48 (d, J=8.08 Hz, 2 H) 7.51-7.61 (m, 4 H)
化合物229		1.34-1.70 (m, 8 H) 1.81-1.97 (m, 2 H) 2.11-2.39 (m, 6 H) 3.23 (s, 3 H) 3.36-3.66 (m, 4 H) 3.62 (s, 2 H) 3.98 (s, 2 H) 4.09 (m, 1 H) 5.09 (s, 2 H) 6.04 (t, J=8.24 Hz, 1 H) 6.81-6.94 (m, 3 H) 6.99 (d, J=7.62 Hz, 2 H) 7.03-7.26 (m, 6 H) 7.30-7.40 (m, 3 H)

表23－1

化合物230		1.36–1.68 (m, 8 H) 1.73–1.91 (m, 2 H) 2.00–2.40 (m, 6 H) 3.18 (s, 3 H) 3.35–3.48 (m, 2 H) 3.51–3.65 (m, 2 H) 3.62 (s, 2 H) 3.95 (s, 2 H) 4.01 (m, 1 H) 5.01 (s, 2 H) 5.09 (s, 2 H) 6.04 (t, J=8.32 Hz, 1 H) 6.82–7.25 (m, 6 H) 7.27–7.50 (m, 8 H)
化合物231		1.35–1.67 (m, 8 H) 1.72–1.87 (m, 2 H) 1.98–2.34 (m, 6 H) 3.07 (s, 3 H) 3.10–3.26 (m, 2 H) 3.38–3.53 (m, 2 H) 3.61 (s, 2 H) 3.80 (s, 2 H) 3.98 (m, 1 H) 5.04 (s, 2 H) 5.07 (s, 4 H) 5.95 (t, J=8.16 Hz, 1 H) 6.57 (t, J=2.18 Hz 1 H) 6.70 (d, J=2.18 Hz, 2 H) 6.80–6.96 (m, 2 H) 7.10 (m, 1 H) 7.13–7.23 (m, 2 H) 7.28–7.51 (m, 10 H)
化合物232		1.32–1.70 (m, 8 H) 1.72–1.88 (m, 2 H) 2.00–2.33 (m, 6 H) 3.13 (s, 3 H) 3.22–3.38 (m, 2 H) 3.41–3.56 (m, 2 H) 3.62 (s, 2 H) 3.89 (s, 2 H) 4.02 (m, 1 H) 5.07 (s, 2 H) 5.09 (s, 2 H) 6.00 (t, J=8.16 Hz, 1 H) 6.83–6.97 (m, 3 H) 7.04 (d, J=7.62 Hz, 1 H) 7.09 (m, 1 H) 7.12–7.24 (m, 3 H) 7.27–7.43 (m, 4 H) 7.44–7.51 (m, 2 H)
化合物233		1.34–1.71 (m, 8 H) 1.85–2.00 (m, 2 H) 2.15–2.39 (m, 6 H) 3.26 (s, 3 H) 3.47–3.66 (m, 4 H) 3.63 (s, 2 H) 3.87 (s, 3 H) 4.04 (s, 2 H) 4.09 (m, 1 H) 5.08 (s, 2 H) 6.08 (t, J=8.00 Hz, 1 H) 6.82 (d, J=8.70 Hz, 1 H) 6.87–6.96 (m, 2 H) 7.13 (m, 1 H) 7.16–7.26 (m, 2 H) 7.37 (dd, J=8.70, 2.18 Hz, 1 H) 7.53 (d, J=2.18 Hz, 1 H)

34／1

表23－2

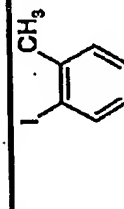
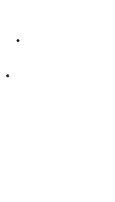
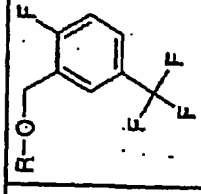
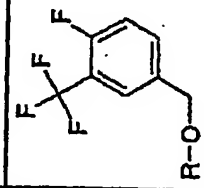
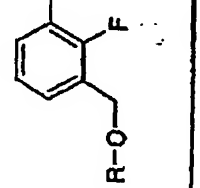
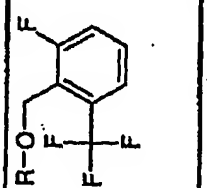
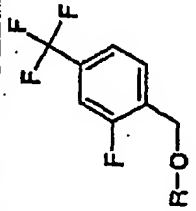
化合物234		1.36–1.71 (m, 8 H) 1.81–2.00 (m, 2 H) 2.12–2.38 (m, 6 H) 2.40 (s, 3 H) 3.27 (s, 3 H) 3.41–3.68 (m, 4 H) 3.61 (s, 2 H) 4.03 (s, 2 H) 4.10 (m, 1 H) 5.01 (s, 2 H) 6.08 (t, J=8.32 Hz, 1 H) 6.81–6.96 (m, 2 H) 7.14–7.30 (m, 4 H) 7.37 (d, J=8.08 Hz, 1 H) 7.84 (s, 1 H)
化合物235		1.37–1.72 (m, 8 H) 1.81–1.95 (m, 2 H) 2.03–2.27 (m, 4 H) 2.29–2.42 (m, 2 H) 2.39 (s, 3 H) 3.26 (s, 3 H) 3.53 (s, 2 H) 3.50–3.63 (m, 4 H) 3.99 (m, 1 H) 4.12 (s, 2 H) 5.21 (s, 2 H) 6.11 (t, J=8.24 Hz, 1 H) 6.75 (m, 1 H) 6.95 (t, J=7.46 Hz, 1 H) 7.00–7.11 (m, 2 H) 7.17–7.33 (m, 3 H)
化合物236		1.34–1.71 (m, 8 H) 1.86–2.01 (m, 2 H) 2.15–2.37 (m, 6 H) 3.27 (s, 3 H) 3.45–3.67 (m, 4 H) 3.64 (s, 2 H) 3.87 (s, 3 H) 4.04 (s, 2 H) 4.09 (m, 1 H) 5.09 (s, 2 H) 6.08 (t, J=8.32 Hz, 1 H) 6.82–6.98 (m, 3 H) 7.12–7.28 (m, 4 H) 7.41 (d, J=2.49 Hz, 1 H)
化合物237		1.36–1.65 (m, 8 H) 1.78–1.96 (m, 2 H) 2.14–2.41 (m, 6 H) 3.27 (s, 3 H) 3.39–3.54 (m, 2 H) 3.56–3.68 (m, 2 H) 3.65 (s, 2 H) 3.86 (s, 3 H) 3.99 (s, 2 H) 4.10 (m, 1 H) 5.05 (s, 2 H) 6.07 (t, J=8.16 Hz, 1 H) 6.84–6.94 (m, 3 H) 6.98 (dd, J=8.08, 1.87 Hz, 1 H) 7.14–7.24 (m, 2 H) 7.34 (m, 1 H) 7.47 (d, J=8.08 Hz, 1 H)
化合物238		1.36–1.65 (m, 8 H) 1.71–1.88 (m, 2 H) 2.00–2.43 (m, 6 H) 3.18 (s, 3 H) 3.26–3.43 (m, 2 H) 3.50–3.65 (m, 2 H) 3.63 (s, 2 H) 3.90 (s, 2 H) 3.92 (s, 3 H) 4.01 (m, 1 H) 5.01 (s, 2 H) 5.16 (s, 2 H) 6.03 (t, J=8.32 Hz, 1 H) 6.73–6.97 (m, 4 H) 7.05 (m, 1 H) 7.13–7.23 (m, 2 H) 7.27–7.51 (m, 6 H)

表24－1

化合物239		1.36–1.71 (m, 8 H) 1.84–2.02 (m, 2 H) 2.15–2.48 (m, 6 H) 3.33 (s, 3 H) 3.44–3.59 (m, 2 H) 3.61–3.75 (m, 2 H) 3.66 (s, 2 H) 4.04 (s, 2 H) 4.13 (m, 1 H) 5.21 (s, 2 H) 6.09 (t, J=8.08 Hz, 1 H) 6.88–6.99 (m, 2 H) 7.18–7.31 (m, 4 H) 7.59 (m, 1 H) 7.86 (d, J=5.75 Hz, 1 H)
化合物240		1.38–1.65 (m, 8 H) 1.81–1.97 (m, 2 H) 2.17–2.44 (m, 6 H) 3.32 (s, 3 H) 3.35–3.52 (m, 2 H) 3.62–3.74 (m, 2 H) 3.68 (s, 2 H) 3.97 (s, 2 H) 4.16 (m, 1 H) 5.10 (s, 2 H) 6.07 (t, J=8.32 Hz, 1 H) 6.87 (d, J=8.24 Hz, 1 H) 6.92 (td, J=7.46, 0.93 Hz, 1 H) 7.16–7.35 (m, 3 H) 7.48 (m, 1 H) 7.65 (dd, J=6.84, 1.86 Hz, 1 H) 7.80 (m, 1 H)
化合物241		1.35–1.70 (m, 8 H) 1.85–2.01 (m, 2 H) 2.15–2.45 (m, 6 H) 3.31 (s, 3 H) 3.41–3.57 (m, 2 H) 3.61–3.72 (m, 2 H) 3.68 (s, 2 H) 4.00 (s, 2 H) 4.16 (m, 1 H) 5.20 (s, 2 H) 6.08 (t, J=8.39 Hz, 1 H) 6.85–7.00 (m, 2 H) 7.17–7.29 (m, 2 H) 7.36 (t, J=7.77 Hz, 1 H) 7.44 (m, 1 H) 7.56 (t, J=7.15 Hz, 1 H) 7.89 (t, J=7.15 Hz, 1 H)
化合物242		1.36–1.67 (m, 8 H) 1.79–1.95 (m, 2 H) 2.02–2.27 (m, 4 H) 2.30–2.39 (m, 2 H) 3.25 (s, 3 H) 3.49 (s, 2 H) 3.52–3.65 (m, 4 H) 3.99 (m, 1 H) 4.11 (s, 2 H) 5.19 (s, 2 H) 6.11 (t, J=8.16 Hz, 1 H) 6.67 (m, 1 H) 6.96 (td, J=7.38, 1.09 Hz, 1 H) 7.05 (d, J=8.24 Hz, 1 H) 7.17–7.32 (m, 2 H) 7.44–7.62 (m, 3 H)
化合物243		1.38–1.71 (m, 8 H) 1.83–1.99 (m, 2 H) 2.16–2.46 (m, 6 H) 3.33 (s, 3 H) 3.38–3.53 (m, 2 H) 3.62–3.76 (m, 2 H) 3.71 (s, 2 H) 3.98 (s, 2 H) 4.18 (m, 1 H) 5.20 (s, 2 H) 6.07 (t, J=8.24 Hz, 1 H) 6.88 (d, J=8.24 Hz, 1 H) 6.93 (t, J=7.38 Hz, 1 H) 7.15–7.28 (m, 2 H) 7.32 (d, J=10.10 Hz, 1 H) 7.51 (d, J=7.77 Hz, 1 H) 7.56 (m, 1 H) 7.87 (dd, J=7.77, 7.31 Hz, 1 H)

35／1

表24－2

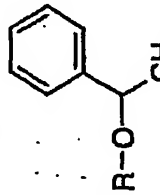
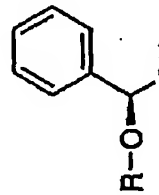
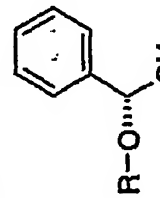
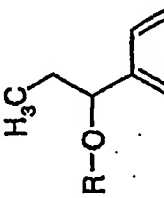
化合物244		1.34–1.68 (m, 8 H) 1.62 (d, J=6.37 Hz, 3 H) 1.84–1.99 (m, 2 H) 2.14–2.39 (m, 6 H) 3.27 (s, 3 H) 3.42–3.71 (m, 6 H) 4.03 (s, 2 H) 4.12 (m, 1 H) 5.35 (q, J=6.37 Hz, 1 H) 6.08 (t, J=8.32 Hz, 1 H) 6.72 (d, J=8.24 Hz, 1 H) 6.83 (t, J=7.46 Hz, 1 H) 7.07 (td, J=7.69, 1.40 Hz, 1 H) 7.13–7.43 (m, 7 H)
化合物245		1.34–1.68 (m, 8 H) 1.62 (d, J=6.37 Hz, 3 H) 1.84–1.99 (m, 2 H) 2.14–2.39 (m, 6 H) 3.27 (s, 3 H) 3.42–3.71 (m, 6 H) 4.03 (s, 2 H) 4.12 (m, 1 H) 5.35 (q, J=6.37 Hz, 1 H) 6.08 (t, J=8.32 Hz, 1 H) 6.72 (d, J=8.24 Hz, 1 H) 6.83 (t, J=7.46 Hz, 1 H) 7.07 (td, J=7.69, 1.40 Hz, 1 H) 7.13–7.43 (m, 7 H)
化合物246		1.34–1.68 (m, 8 H) 1.62 (d, J=6.37 Hz, 3 H) 1.84–1.99 (m, 2 H) 2.14–2.39 (m, 6 H) 3.27 (s, 3 H) 3.42–3.71 (m, 6 H) 4.03 (s, 2 H) 4.12 (m, 1 H) 5.35 (q, J=6.37 Hz, 1 H) 6.08 (t, J=8.32 Hz, 1 H) 6.72 (d, J=8.24 Hz, 1 H) 6.83 (t, J=7.46 Hz, 1 H) 7.07 (td, J=7.69, 1.40 Hz, 1 H) 7.13–7.43 (m, 7 H)
化合物247		0.95 (t, J=7.38 Hz, 3 H) 1.37–1.71 (m, 8 H) 1.80–2.12 (m, 4 H) 2.15–2.44 (m, 6 H) 3.28 (s, 3 H) 3.43–3.73 (m, 6 H) 4.03 (s, 2 H) 4.15 (m, 1 H) 5.08 (t, J=6.37 Hz, 1 H) 6.08 (t, J=8.32 Hz, 1 H) 6.66 (d, J=8.24 Hz, 1 H) 6.81 (t, J=7.54 Hz, 1 H) 7.04 (t, J=7.62 Hz, 1 H) 7.11–7.39 (m, 7 H)

表25－1

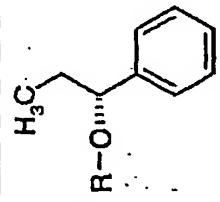
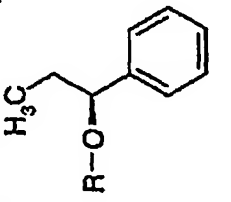
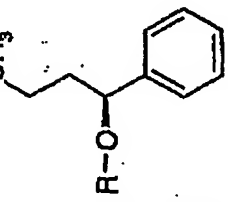
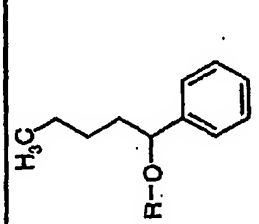
化合物248		0.95 (t, J=7.38 Hz, 3 H) 1.37–1.71 (m, 8 H) 1.80–2.12 (m, 4 H) 2.15–2.44 (m, 6 H) 3.28 (s, 3 H) 3.43–3.73 (m, 6 H) 4.03 (s, 2 H) 4.15 (m, 1 H) 5.08 (t, J=6.37 Hz, 1 H) 6.08 (t, J=8.32 Hz, 1 H) 6.66 (d, J=8.24 Hz, 1 H) 6.81 (t, J=7.54 Hz, 1 H) 7.04 (t, J=7.62 Hz, 1 H) 7.11–7.39 (m, 7 H)
化合物249		0.95 (t, J=7.38 Hz, 3 H) 1.37–1.71 (m, 8 H) 1.80–2.12 (m, 4 H) 2.15–2.44 (m, 6 H) 3.28 (s, 3 H) 3.43–3.73 (m, 6 H) 4.03 (s, 2 H) 4.15 (m, 1 H) 5.08 (t, J=6.37 Hz, 1 H) 6.08 (t, J=8.32 Hz, 1 H) 6.66 (d, J=8.24 Hz, 1 H) 6.81 (t, J=7.54 Hz, 1 H) 7.04 (t, J=7.62 Hz, 1 H) 7.11–7.39 (m, 7 H)
化合物250		0.92 (t, J=7.31 Hz, 3 H) 1.25–1.69 (m, 10 H) 1.69–2.21 (m, 4 H) 2.12–2.41 (m, 6 H) 3.28 (s, 3 H) 3.39–3.77 (m, 6 H) 4.04 (s, 2 H) 4.15 (m, 1 H) 5.15 (t, J=6.61 Hz, 1 H) 6.08 (t, J=8.24 Hz, 1 H) 6.67 (d, J=7.77 Hz, 1 H) 6.81 (td, J=7.42, 0.85 Hz, 1 H) 7.04 (td, J=7.73, 1.48 Hz, 1 H) 7.12–7.42 (m, 7 H)
化合物251		0.87 (t, J=6.99 Hz, 3 H) 1.19–1.72 (m, 12 H) 1.76–2.11 (m, 4 H) 2.15–2.43 (m, 6 H) 3.27 (s, 3 H) 3.40–3.79 (m, 6 H) 4.04 (s, 2 H) 4.11 (m, 1 H) 5.13 (t, J=6.61 Hz, 1 H) 6.08 (t, J=8.16 Hz, 1 H) 6.68 (d, J=8.24 Hz, 1 H) 6.81 (t, J=7.38 Hz, 1 H) 6.99–7.43 (m, 8 H)

表25－2

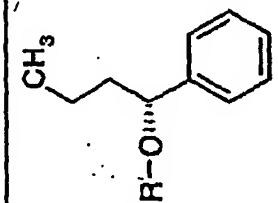
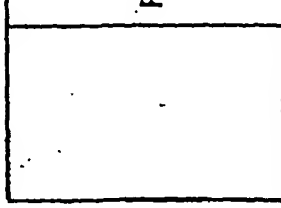
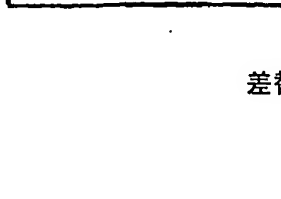
化合物252		0.92 (t, J=7.31 Hz, 3 H) 1.25–1.69 (m, 10 H) 1.69–2.21 (m, 4 H) 2.12–2.41 (m, 6 H) 3.28 (s, 3 H) 3.39–3.77 (m, 6 H) 4.04 (s, 2 H) 4.15 (m, 1 H) 5.15 (t, J=6.61 Hz, 1 H) 6.08 (t, J=8.24 Hz, 1 H) 6.67 (d, J=7.77 Hz, 1 H) 6.81 (td, J=7.42, 0.85 Hz, 1 H) 7.04 (td, J=7.73, 1.48 Hz, 1 H) 7.12–7.42 (m, 7 H)
化合物253		0.88 (s, 3 H) 1.01 (s, 6 H) 1.37–1.68 (m, 8 H) 1.80–2.10 (m, 2 H) 2.18–2.49 (m, 6 H) 3.32 (s, 3 H) 3.43–3.79 (m, 4 H) 3.77 (s, 2 H) 4.03 (s, 2 H) 4.20 (m, 1 H) 4.80 (s, 1 H) 6.10 (t, J=8.24 Hz, 1 H) 6.53 (d, J=7.93 Hz, 1 H) 6.77 (t, J=7.31 Hz, 1 H) 6.81–7.84 (m, 8 H)
化合物254		1.36–1.69 (m, 8 H) 1.89–2.03 (m, 2 H) 2.16–2.44 (m, 6 H) 2.61 (m, 1 H) 2.78 (m, 1 H) 3.29 (s, 3 H) 3.45–3.72 (m, 4 H) 3.69 (s, 2 H) 4.04 (s, 2 H) 4.16 (m, 1 H) 5.00–5.14 (m, 2 H) 5.20 (dd, J=6.99, 5.91 Hz, 1 H) 5.82 (m, 1 H) 6.08 (t, J=8.24 Hz, 1 H) 6.66 (d, J=7.93 Hz, 1 H) 6.82 (td, J=7.38, 0.78 Hz, 1 H) 7.03 (ddd, J=8.09, 7.61, 1.71 Hz, 1 H) 7.14–7.42 (m, 7 H)
化合物255		1.38–1.69 (m, 11 H) 1.88–2.04 (m, 2 H) 2.18–2.42 (m, 6 H) 2.32 (s, 3 H) 3.28 (s, 3 H) 3.39–3.70 (m, 4 H) 3.67 (s, 2 H) 4.05 (s, 2 H) 4.12 (m, 1 H) 5.32 (q, J=6.48 Hz, 1 H) 6.09 (t, J=8.16 Hz, 1 H) 6.72 (d, J=8.08 Hz, 1 H) 6.82 (t, J=7.38 Hz, 1 H) 6.98–7.22 (m, 5 H) 7.24–7.31 (m, 2 H)

表2.6－1

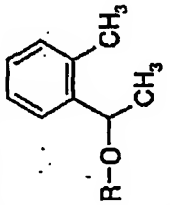
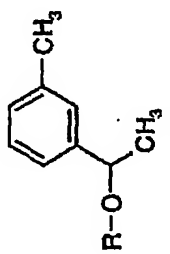
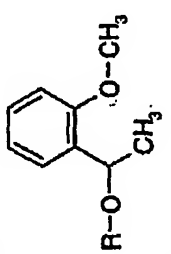
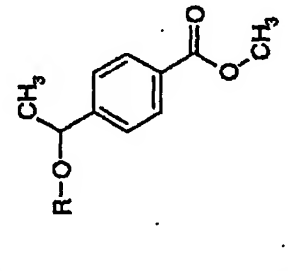
化合物256		1.40–1.67 (m, 8 H) 1.59 (d, J=6.37 Hz, 3 H) 1.90–2.05 (m, 2 H) 2.16–2.39 (m, 6 H) 2.41 (s, 3 H) 3.29 (s, 3 H) 3.43–3.74 (m, 6 H) 4.04 (s, 2 H) 4.15 (m, 1 H) 5.49 (q, J=6.37 Hz, 1 H) 6.08 (t, J=8.32 Hz, 1 H) 6.55 (d, J=8.24 Hz, 1 H) 6.82 (t, J=7.38 Hz, 1 H) 6.99–7.25 (m, 6 H) 7.41 (m, 1 H)
化合物257		1.40–1.70 (m, 8 H) 1.61 (d, J=6.37 Hz, 3 H) 1.87–2.03 (m, 2 H) 2.16–2.39 (m, 6 H) 2.34 (s, 3 H) 3.28 (s, 3 H) 3.39–3.70 (m, 4 H) 3.67 (s, 2 H) 4.05 (s, 2 H) 4.13 (m, 1 H) 5.30 (q, J=6.37 Hz, 1 H) 6.09 (t, J=8.32 Hz, 1 H) 6.72 (d, J=8.24 Hz, 1 H) 6.83 (td, J=7.42, 0.70 Hz, 1 H) 7.01–7.12 (m, 2 H) 7.14–7.26 (m, 5 H)
化合物258		1.40–1.66 (m, 8 H) 1.58 (d, J=6.37 Hz, 3 H) 1.86–2.09 (m, 2 H) 2.17–2.40 (m, 6 H) 3.24 (s, 3 H) 3.37–3.84 (m, 4 H) 3.89 (s, 2 H) 3.91 (s, 3 H) 4.01 (m, 1 H) 4.06 (s, 2 H) 5.77 (q, J=6.37 Hz, 1 H) 6.11 (t, J=8.16 Hz, 1 H) 6.11–7.30 (m, 8 H) 7.40 (dd, J=7.85, 1.63 Hz, 1 H)
化合物259		1.39–1.69 (m, 8 H) 1.63 (d, J=6.37 Hz, 3 H) 1.91–2.07 (m, 2 H) 2.17–2.28 (m, 2 H) 2.31–2.55 (m, 4 H) 3.34 (s, 3 H) 3.42–3.60 (m, 2 H) 3.64–3.78 (m, 2 H) 3.71 (s, 2 H) 3.89 (s, 3 H) 4.03 (s, 2 H) 4.21 (m, 1 H) 5.39 (q, J=6.37 Hz, 1 H) 6.08 (t, J=8.24 Hz, 1 H) 6.62 (dd, J=8.08, 0.93 Hz, 1 H) 6.83 (ddd, J=7.62, 7.31, 0.93 Hz, 1 H) 7.04 (ddd, J=8.08, 7.62, 1.71 Hz, 1 H) 7.20 (dd, J=7.31, 1.71 Hz, 1 H) 7.42 (m, 1 H) 7.47 (d, J=8.32 Hz, 2 H) 7.99 (d, J=8.32 Hz, 2 H)

表26－2

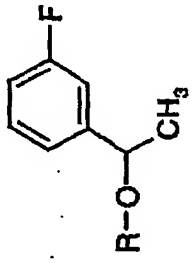
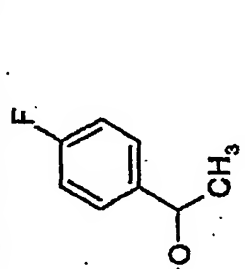
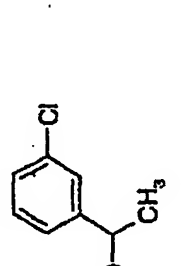
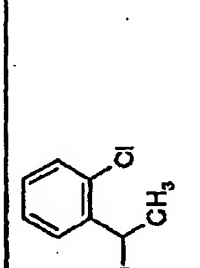
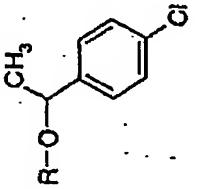
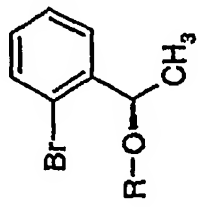
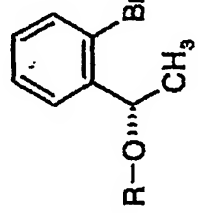
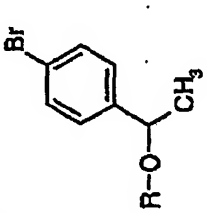
化合物260		1.37–1.68 (m, 8 H) 1.62 (d, J=6.37 Hz, 3 H) 1.92–2.07 (m, 2 H) 2.15–2.27 (m, 2 H) 2.30–2.54 (m, 4 H) 3.32 (s, 3 H) 3.47–3.77 (m, 6 H) 4.03 (s, 2 H) 4.20 (m, 1 H) 5.33 (q, J=6.37 Hz, 1 H) 6.07 (t, J=8.08 Hz, 1 H) 6.66 (d, J=7.77 Hz, 1 H) 6.84 (t, J=7.38 Hz, 1 H) 6.92 (m, 1 H) 7.01–7.23 (m, 4 H) 7.25–7.39 (m, 2 H)
化合物261		1.38–1.68 (m, 8 H) 1.60 (d, J=6.37 Hz, 3 H) 1.90–2.05 (m, 2 H) 2.18–2.50 (m, 6 H) 3.32 (s, 3 H) 3.42–3.76 (m, 4 H) 3.68 (s, 2 H) 4.02 (s, 2 H) 4.19 (m, 1 H) 5.33 (q, J=6.37 Hz, 1 H) 6.09 (t, J=8.16 Hz, 1 H) 6.68 (d, J=8.08 Hz, 1 H) 6.83 (dd, J=7.69, 7.23 Hz, 1 H) 6.96–7.12 (m, 4 H) 7.18 (dd, J=7.23, 1.32 Hz, 1 H) 7.30–7.44 (m, 2 H)
化合物262		1.37–1.70 (m, 8 H) 1.61 (d, J=6.37 Hz, 3 H) 1.92–2.07 (m, 2 H) 2.15–2.28 (m, 2 H) 2.31–2.51 (m, 4 H) 3.31 (s, 3 H) 3.46–3.76 (m, 6 H) 4.03 (s, 2 H) 4.19 (m, 1 H) 5.31 (q, J=6.37 Hz, 1 H) 6.08 (t, J=8.16 Hz, 1 H) 6.66 (d, J=8.08 Hz, 1 H) 6.85 (dd, J=7.54, 7.38 Hz, 1 H) 7.07 (ddd, J=8.08, 7.54, 1.63 Hz, 1 H) 7.17–7.25 (m, 2 H) 7.26–7.39 (m, 4 H)
化合物263		1.34–1.72 (m, 8 H) 1.62 (d, J=6.37 Hz, 3 H) 1.91–2.07 (m, 2 H) 2.17–2.28 (m, 2 H) 2.30–2.54 (m, 4 H) 3.32 (s, 3 H) 3.45–3.76 (m, 6 H) 4.03 (s, 2 H) 4.23 (m, 1 H) 5.69 (q, J=6.37 Hz, 1 H) 6.08 (t, J=8.32 Hz, 1 H) 6.56 (d, J=8.16 Hz, 1 H) 6.82 (dd, J=7.61, 7.46 Hz, 1 H) 7.04 (ddd, J=8.16, 7.61, 1.48 Hz, 1 H) 7.13–7.28 (m, 3 H) 7.34 (dd, J=7.77, 1.40 Hz, 1 H) 7.45 (m, 1 H) 7.52 (dd, J=7.54, 1.79 Hz, 1 H)

表27－1

化合物264		1.36–1.72 (m, 8 H) 1.60 (d, J=6.37 Hz, 3 H) 1.86–2.02 (m, 2 H) 2.16–2.27 (m, 2 H) 2.30–2.49 (m, 4 H) 3.32 (s, 3 H) 3.42–3.58 (m, 2 H) 3.61–3.75 (m, 2 H) 3.68 (s, 2 H) 4.01 (s, 2 H) 4.19 (m, 1 H) 5.33 (q, J=6.37 Hz, 1 H) 6.08 (t, J=8.08 Hz, 1 H) 6.67 (d, J=8.01 Hz, 1 H) 6.83 (dd, J=7.70, 7.22 Hz, 1 H) 7.06 (ddd, J=8.01, 7.70, 1.48 Hz, 1 H) 7.19 (dd, J=7.70, 7.22 Hz, 1 H) 7.06 (ddd, J=8.01, 7.70, 1.48 Hz, 1 H) 7.19 (dd, J=7.22, 1.48 Hz, 1 H) 7.26–7.46 (m, 5 H)
化合物265		1.39–1.69 (m, 8 H) 1.61 (d, J=6.37 Hz, 3 H) 1.91–2.10 (m, 2 H) 2.17–2.28 (m, 2 H) 2.30–2.55 (m, 4 H) 3.32 (s, 3 H) 3.45–3.62 (m, 2 H) 3.63–3.77 (m, 4 H) 4.02 (s, 2 H) 4.24 (m, 1 H) 5.63 (q, J=6.37 Hz, 1 H) 6.08 (t, J=8.16 Hz, 1 H) 6.54 (d, J=8.24 Hz, 1 H) 6.82 (t, J=7.38 Hz, 1 H) 6.99–7.16 (m, 2 H) 7.19 (dd, J=7.38, 1.48 Hz, 1 H) 7.29 (m, 1 H) 7.46 (m, 1 H) 7.49–7.57 (m, 2 H)
化合物266		1.39–1.69 (m, 8 H) 1.61 (d, J=6.37 Hz, 3 H) 1.91–2.10 (m, 2 H) 2.17–2.28 (m, 2 H) 2.30–2.55 (m, 4 H) 3.32 (s, 3 H) 3.45–3.62 (m, 2 H) 3.63–3.77 (m, 4 H) 4.02 (s, 2 H) 4.24 (m, 1 H) 5.63 (q, J=6.37 Hz, 1 H) 6.08 (t, J=8.16 Hz, 1 H) 6.54 (d, J=8.24 Hz, 1 H) 6.82 (t, J=7.38 Hz, 1 H) 6.99–7.16 (m, 2 H) 7.19 (dd, J=7.38, 1.48 Hz, 1 H) 7.29 (m, 1 H) 7.46 (m, 1 H) 7.49–7.57 (m, 2 H)
化合物267		1.40–1.69 (m, 8 H) 1.60 (d, J=6.37 Hz, 3 H) 1.85–2.03 (m, 2 H) 2.17–2.27 (m, 2 H) 2.29–2.49 (m, 4 H) 3.32 (s, 3 H) 3.39–3.57 (m, 2 H) 3.60–3.75 (m, 2 H) 3.68 (s, 2 H) 4.00 (s, 2 H) 4.18 (m, 1 H) 5.31 (q, J=6.37 Hz, 1 H) 6.08 (t, J=8.24 Hz, 1 H) 6.67 (d, J=8.08 Hz, 1 H) 6.83 (dd, J=7.61, 7.31 Hz, 1 H) 7.07 (ddd, J=8.08, 7.61, 1.71 Hz, 1 H) 7.19 (dd, J=7.31, 1.71 Hz, 1 H) 7.25–7.36 (m, 2 H) 7.42 (m, 1 H) 7.46 (d, J=8.24 Hz, 2 H)

38／1

表27－2

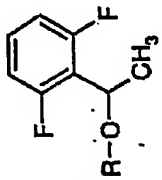
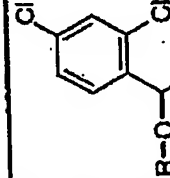
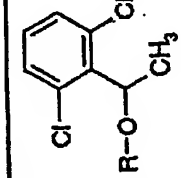
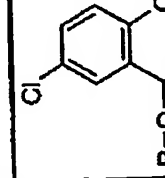
化合物268		1.39–1.69 (m, 8 H) 1.78 (d, J=6.68 Hz, 3 H) 1.91–2.05 (m, 2 H) 2.15–2.41 (m, 6 H) 3.30 (s, 3 H) 3.57–3.70 (m, 6 H) 4.06 (m, 1 H) 4.15 (s, 2 H) 5.76 (q, J=6.68 Hz, 1 H) 6.13 (t, J=8.32 Hz, 1 H) 6.81–6.98 (m, 5 H) 7.09–7.33 (m, 3 H)
化合物269		1.38–1.70 (m, 8 H) 1.60 (d, J=6.37 Hz, 3 H) 1.93–2.10 (m, 2 H) 2.16–2.28 (m, 2 H) 2.31–2.60 (m, 4 H) 3.37 (s, 3 H) 3.45–3.60 (m, 2 H) 3.69–3.82 (m, 4 H) 4.02 (s, 2 H) 4.26 (m, 1 H) 5.64 (q, J=6.37 Hz, 1 H) 6.09 (t, J=8.32 Hz, 1 H) 6.51 (d, J=8.08 Hz, 1 H) 6.83 (dd, J=7.54, 7.22 Hz, 1 H) 7.05 (ddd, J=8.08, 7.54, 1.63 Hz, 1 H) 7.16–7.30 (m, 2 H) 7.35 (d, J=2.02 Hz, 1 H) 7.53 (d, J=8.39 Hz, 1 H) 7.61 (m, 1 H)
化合物270		1.36–1.69 (m, 8 H) 1.77 (d, J=6.68 Hz, 3 H) 1.92–2.05 (m, 2 H) 2.16–2.27 (m, 2 H) 2.30–2.44 (m, 4 H) 3.32 (s, 3 H) 3.50–3.75 (m, 4 H) 3.63 (d, J=15.31 Hz, 1 H) 3.81 (d, J=15.31 Hz, 1 H) 4.10 (s, 2 H) 4.14 (m, 1 H) 6.03 (q, J=6.68 Hz, 1 H) 6.11 (t, J=8.24 Hz, 1 H) 6.66 (dd, J=8.08, 0.93 Hz, 1 H) 6.84 (td, J=7.38, 0.93 Hz, 1 H) 7.04–7.21 (m, 4 H) 7.26–7.31 (m, 2 H)
化合物271		1.39–1.73 (m, 8 H) 1.61 (d, J=6.22 Hz, 3 H) 1.97–2.13 (m, 2 H) 2.15–2.28 (m, 2 H) 2.31–2.41 (m, 2 H) 2.41–2.60 (m, 2 H) 3.35 (s, 3 H) 3.49–3.82 (m, 6 H) 4.05 (s, 2 H) 4.25 (m, 1 H) 5.61 (q, J=6.22 Hz, 1 H) 6.08 (t, J=8.24 Hz, 1 H) 6.52 (dd, J=8.08, 0.54 Hz, 1 H) 6.85 (ddd, J=7.62, 7.38, 0.54 Hz, 1 H) 7.06 (ddd, J=8.08, 7.62, 1.55 Hz, 1 H) 7.15 (dd, J=8.55, 2.57 Hz, 1 H) 7.23 (dd, J=7.38, 1.55 Hz, 1 H) 7.29 (d, J=8.55 Hz, 1 H) 7.42 (m, 1 H) 7.49 (d, J=2.57 Hz, 1 H)

表２８－１

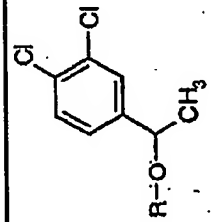
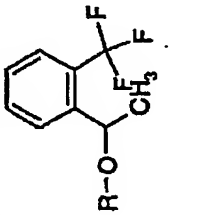
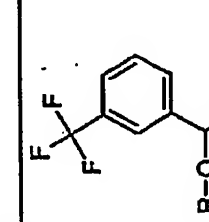
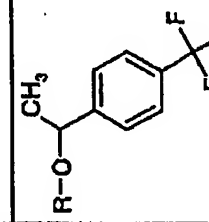
化合物272		1.37–1.72 (m, 8 H) 1.60 (d, J=6.37 Hz, 3 H) 1.90–2.05 (m, 2 H) 2.17–2.29 (m, 2 H) 2.31–2.58 (m, 4 H) 3.34 (s, 3 H) 3.43–3.60 (m, 2 H) 3.63–3.78 (m, 4 H) 4.01 (s, 2 H) 4.22 (m, 1 H) 5.30 (q, J=6.37 Hz, 1 H) 6.08 (t, J=8.08 Hz, 1 H) 6.64 (d, J=8.24 Hz, 1 H) 6.85 (dd, J=7.61, 7.46 Hz, 1 H) 7.07 (ddd, J=8.24, 7.61, 1.55 Hz, 1 H) 7.20 (dd, J=7.46, 1.55 Hz, 1 H) 7.30 (dd, J=8.32, 1.94 Hz, 1 H) 7.40–7.50 (m, 3 H)
化合物273		1.37–1.69 (m, 8 H) 1.63 (d, J=6.22 Hz, 3 H) 1.93–2.08 (m, 2 H) 2.16–2.28 (m, 2 H) 2.31–2.53 (m, 4 H) 3.32 (s, 3 H) 3.47–3.62 (m, 2 H) 3.64–3.82 (m, 4 H) 4.02 (s, 2 H) 4.24 (m, 1 H) 5.70 (q, J=6.22 Hz, 1 H) 6.08 (t, J=8.16 Hz, 1 H) 6.63 (dd, J=7.92, 0.78 Hz, 1 H) 6.81 (td, J=7.46, 0.78 Hz, 1 H) 7.03 (ddd, J=7.92, 7.46, 1.55 Hz, 1 H) 7.19 (dd, J=7.46, 1.55 Hz, 1 H) 7.34 (dd, J=7.93, 7.70 Hz, 1 H) 7.49 (m, 1 H) 7.56 (dd, J=8.08, 7.70 Hz, 1 H) 7.63 (d, J=8.08 Hz, 1 H) 7.80 (d, J=7.93 Hz, 1 H)
化合物274		1.37–1.71 (m, 8 H) 1.64 (d, J=6.37 Hz, 3 H) 1.90–2.04 (m, 2 H) 2.16–2.28 (m, 2 H) 2.30–2.52 (m, 4 H) 3.33 (s, 3 H) 3.46–3.61 (m, 2 H) 3.63–3.75 (m, 2 H) 3.70 (s, 2 H) 4.03 (s, 2 H) 4.20 (m, 1 H) 5.39 (q, J=6.37 Hz, 1 H) 6.08 (t, J=8.24 Hz, 1 H) 6.64 (dd, J=7.93, 0.85 Hz, 1 H) 6.85 (td, J=7.46, 0.85 Hz, 1 H) 7.07 (ddd, J=7.93, 7.46, 1.55 Hz, 1 H) 7.21 (dd, J=7.46, 1.55 Hz, 1 H) 7.40 (m, 1 H) 7.44–7.53 (m, 2 H) 7.58–7.67 (m, 2 H)
化合物275		1.35–1.69 (m, 8 H) 1.63 (d, J=6.37 Hz, 3 H) 1.86–2.05 (m, 2 H) 2.16–2.28 (m, 2 H) 2.31–2.54 (m, 4 H) 3.35 (s, 3 H) 3.40–3.55 (m, 2 H) 3.63–3.78 (m, 2 H) 3.72 (s, 2 H) 4.00 (s, 2 H) 4.21 (m, 1 H) 5.40 (q, J=6.37 Hz, 1 H) 6.08 (t, J=8.32 Hz, 1 H) 6.64 (d, J=8.24 Hz, 1 H) 6.84 (dd, J=7.60, 7.31 Hz, 1 H) 7.06 (dd, J=8.24, 7.60 Hz, 1 H) 7.21 (d, J=7.31 Hz, 1 H) 7.42–7.64 (m, 5 H)

表2.8－2

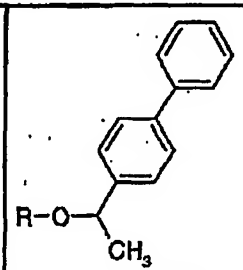
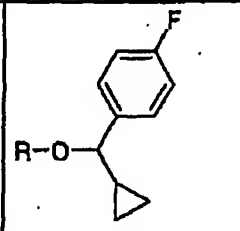
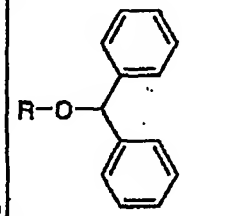
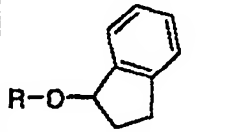
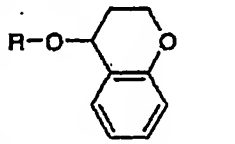
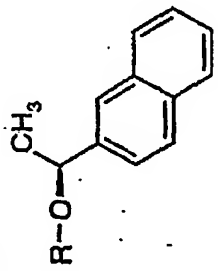
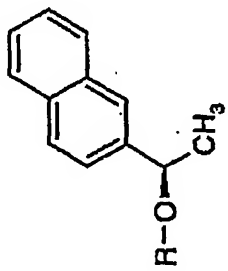
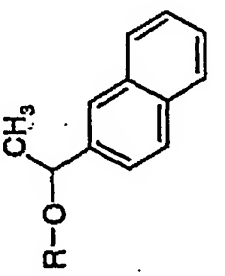
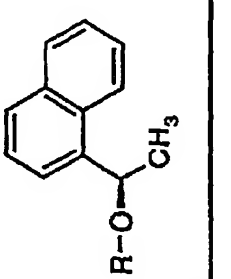
化合物276		1.36–1.64 (m, 8 H) 1.66 (d, J=6.37 Hz, 3 H) 1.85–1.99 (m, 2 H) 2.13–2.40 (m, 6 H) 3.23 (s, 3 H) 3.35–3.53 (m, 2 H) 3.56–3.72 (m, 4 H) 3.96 (m, 2 H) 4.12 (m, 1 H) 5.40 (q, J=6.37 Hz, 1 H) 6.03 (t, J=8.32 Hz, 1 H) 6.76 (dd, J=8.08, 1.09 Hz, 1 H) 6.84 (td, J=7.46, 1.09 Hz, 1 H) 7.09 (ddd, J=8.08, 7.46, 1.55 Hz, 1 H) 7.20 (dd, J=7.46, 1.55 Hz, 1 H) 7.27–7.62 (m, 10 H)
化合物277		0.14–0.36 (m, 2 H) 0.43–0.70 (m, 2 H) 1.23–1.68 (m, 9 H) 1.93–2.14 (m, 2 H) 2.19–2.46 (m, 6 H) 3.35 (s, 2 H) 3.38 (s, 3 H) 3.67–3.84 (m, 4 H) 3.91 (s, 2 H) 3.97 (m, 1 H) 4.26 (m, 1 H) 6.07 (t, J=7.77 Hz, 1 H) 6.80 (t, J=7.54 Hz, 1 H) 6.85–7.06 (m, 3 H) 7.07–7.33 (m, 5 H)
化合物278		1.39–1.68 (m, 8 H) 1.68–2.41 (m, 8 H) 3.19 (s, 3 H) 3.34–3.69 (m, 4 H) 3.73 (s, 2 H) 3.97 (m, 1 H) 4.01 (s, 2 H) 6.08 (t, J=8.00 Hz, 1 H) 6.28 (s, 1 H) 6.79 (dd, J=8.08, 0.93 Hz, 1 H) 6.85 (ddd, J=7.62, 7.30, 0.93 Hz, 1 H) 6.98 (dd, J=8.08, 7.62 Hz, 1 H) 7.03–7.51 (m, 12 H)
化合物279		1.38–1.69 (m, 8 H) 1.69–2.66 (m, 10 H) 2.85–3.07 (m, 2 H) 3.21 (s, 3 H) 3.33–3.68 (m, 4 H) 3.38 (s, 2 H) 3.91 (m, 1 H) 3.95 (s, 2 H) 4.88 (t, J=7.62 Hz, 1 H) 6.09 (t, J=8.16 Hz, 1 H) 6.66–7.36 (m, 9 H)
化合物280		1.39–1.69 (m, 8 H) 1.69–2.50 (m, 10 H) 3.26 (s, 3 H) 3.35–3.53 (m, 4 H) 3.58–3.74 (m, 2 H) 3.90–4.41 (m, 5 H) 5.42 (t, J=3.81 Hz, 1 H) 6.10 (t, J=8.39 Hz, 1 H) 6.67 (d, J=4.82 Hz, 1 H) 6.72–7.16 (m, 5 H) 7.19–7.34 (m, 3 H)

表29－1

化合物281		1.35–1.61 (m, 8 H) 1.71 (d, J=6.37 Hz, 3 H) 1.74–1.90 (m, 2 H) 1.99–2.31 (m, 6 H) 3.06 (s, 3 H) 3.20–3.58 (m, 4 H) 3.66 (d, J=15.16 Hz, 1 H) 3.76 (d, J=15.16 Hz, 1 H) 3.88 (s, 2 H) 4.05 (m, 1 H) 5.52 (q, J=6.37 Hz, 1 H) 5.98 (t, J=8.16 Hz, 1 H) 6.77–6.88 (m, 2 H) 7.07 (ddd, J=8.08, 7.46, 1.63 Hz, 1 H) 7.12–7.23 (m, 2 H) 7.36–7.52 (m, 3 H) 7.56 (dd, J=8.63, 1.48 Hz, 1 H) 7.76–7.91 (m, 3 H)
化合物282		1.35–1.61 (m, 8 H) 1.71 (d, J=6.37 Hz, 3 H) 1.74–1.90 (m, 2 H) 1.99–2.31 (m, 6 H) 3.06 (s, 3 H) 3.20–3.58 (m, 4 H) 3.66 (d, J=15.16 Hz, 1 H) 3.76 (d, J=15.16 Hz, 1 H) 3.88 (s, 2 H) 4.05 (m, 1 H) 5.52 (q, J=6.37 Hz, 1 H) 5.98 (t, J=8.16 Hz, 1 H) 6.77–6.88 (m, 2 H) 7.07 (ddd, J=8.08, 7.46, 1.63 Hz, 1 H) 7.12–7.23 (m, 2 H) 7.36–7.52 (m, 3 H) 7.56 (dd, J=8.63, 1.48 Hz, 1 H) 7.76–7.91 (m, 3 H)
化合物283		1.35–1.61 (m, 8 H) 1.71 (d, J=6.37 Hz, 3 H) 1.74–1.90 (m, 2 H) 1.99–2.31 (m, 6 H) 3.06 (s, 3 H) 3.20–3.58 (m, 4 H) 3.66 (d, J=15.16 Hz, 1 H) 3.76 (d, J=15.16 Hz, 1 H) 3.88 (s, 2 H) 4.05 (m, 1 H) 5.52 (q, J=6.37 Hz, 1 H) 5.98 (t, J=8.16 Hz, 1 H) 6.77–6.88 (m, 2 H) 7.07 (ddd, J=8.08, 7.46, 1.63 Hz, 1 H) 7.12–7.23 (m, 2 H) 7.36–7.52 (m, 3 H) 7.56 (dd, J=8.63, 1.48 Hz, 1 H) 7.76–7.91 (m, 3 H)
化合物284		1.36–1.68 (m, 8 H) 1.79 (d, J=6.22 Hz, 3 H) 1.81–1.93 (m, 2 H) 2.08–2.36 (m, 6 H) 3.18 (s, 3 H) 3.32–3.85 (m, 6 H) 3.94 (s, 2 H) 4.09 (m, 1 H) 5.94–6.14 (m, 2 H) 6.63 (dd, J=8.08, 0.78 Hz, 1 H) 6.81 (ddd, J=7.46, 7.30, 0.78 Hz, 1 H) 6.99 (ddd, J=8.08, 7.46, 1.71 Hz, 1 H) 7.14–7.24 (m, 2 H) 7.32–7.65 (m, 4 H) 7.77 (d, J=8.24 Hz, 1 H) 7.90 (dd, J=8.08, 1.24 Hz, 1 H) 8.14 (d, J=8.39 Hz, 1 H)

40／1

表29－2

化合物285		1.38–1.68 (m, 12 H) 1.73–2.02 (m, 4 H) 2.13–2.41 (m, 8 H) 2.88 (m, 1 H) 3.25 (s, 3 H) 3.44–3.68 (m, 4 H) 3.61 (s, 2 H) 3.99 (m, 1 H) 4.04 (s, 2 H) 4.74 (br.s, 1 H) 6.08 (t, J=8.32 Hz, 1 H) 6.64 (d, J=7.93 Hz, 1 H) 6.78–6.88 (m, 2 H) 7.05–7.20 (m, 3 H) 7.23–7.35 (m, 4 H)
化合物286		1.39–1.67 (m, 8 H) 1.67–1.93 (m, 2 H) 2.03–2.29 (m, 6 H) 2.31–2.39 (m, 2 H) 2.85 (m, 1 H) 2.95–3.11 (m, 2 H) 3.19 (m, 1 H) 3.24 (m, 3 H) 3.35–3.68 (m, 6 H) 3.86 (m, 1 H) 4.07 (s, 2 H) 4.81 (m, 1 H) 6.11 (t, J=8.32 Hz, 1 H) 6.71 (m, 1 H) 6.87–7.01 (m, 2 H) 7.05–7.15 (m, 4 H) 7.18–7.26 (m, 2 H)
化合物287		1.29 (d, J=6.06 Hz, 3 H) 1.38–1.70 (m, 8 H) 1.84–1.99 (m, 2 H) 2.15–2.42 (m, 6 H) 2.90 (dd, J=13.60, 6.88 Hz, 1 H) 3.11 (dd, J=13.60, 5.76 Hz, 1 H) 3.29 (s, 3 H) 3.45–3.71 (m, 4 H) 3.57 (s, 2 H) 4.06 (m, 1 H) 4.06 (s, 2 H) 4.66 (qdd, J=6.06, 6.68, 5.76 Hz, 1 H) 6.09 (t, J=8.32 Hz, 1 H) 6.83–6.93 (m, 2 H) 6.97 (m, 1 H) 7.14–7.36 (m, 7 H)
化合物288		0.96 (t, J=7.38 Hz, 3 H) 1.39–1.73 (m, 10 H) 1.83–1.98 (m, 2 H) 2.17–2.40 (m, 6 H) 2.91 (dd, J=13.91, 6.29 Hz, 1 H) 3.06 (dd, J=13.91, 5.59 Hz, 1 H) 3.29 (s, 3 H) 3.42–3.74 (m, 6 H) 4.05 (m, 1 H) 4.07 (s, 2 H) 4.47 (m, 1 H) 6.10 (t, J=8.32 Hz, 1 H) 6.84–6.91 (m, 2 H) 6.95 (m, 1 H) 7.15–7.35 (m, 7 H)
化合物289		1.27 (d, J=5.91 Hz, 3 H) 1.37–1.68 (s, 8 H) 1.87–2.02 (m, 2 H) 2.16–2.40 (m, 6 H) 2.78 (dd, J=13.21, 7.46 Hz, 1 H) 3.20 (dd, J=13.21, 5.60 Hz, 1 H) 3.28 (s, 3 H) 3.48–3.68 (m, 6 H) 3.85 (s, 3 H) 4.06 (m, 1 H) 4.10 (s, 2 H) 4.73 (qdd, J=5.91, 7.46, 5.60 Hz, 1 H) 6.11 (t, J=8.24 Hz, 1 H) 6.82–6.93 (m, 4 H) 7.01 (d, J=7.93 Hz, 1 H) 7.16–7.26 (m, 4 H)

表30－1

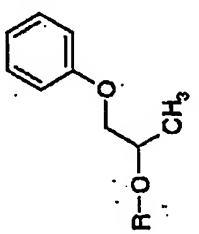
化合物290		1.39–1.67 (m, 8 H) 1.41 (d, J=6.22 Hz, 3 H) 1.71–1.95 (m, 2 H) 1.98–2.38 (m, 6 H) 3.08 (s, 3 H) 3.15–3.64 (m, 4 H) 3.45 (d, J=14.61 Hz, 1 H) 3.71 (d, J=14.61 Hz, 1 H) 3.91 (s, 2 H) 3.98 (m, 1 H) 4.04 (dd, J=10.03, 3.65 Hz, 1 H) 4.43 (dd, J=10.03, 6.45 Hz, 1 H) 4.83 (qdd, J=6.22, 6.45, 3.65 Hz, 1 H) 6.02 (t, J=8.16 Hz, 1 H) 6.86–7.02 (m, 5 H) 7.18–7.35 (m, 5 H)
化合物291		1.39–1.66 (m, 8 H) 1.42 (d, J=6.22 Hz, 3 H) 1.79–2.14 (m, 4 H) 2.16–2.37 (m, 4 H) 3.00 (s, 3 H) 3.26–3.63 (m, 4 H) 3.48 (d, J=14.14 Hz, 1 H) 3.72 (d, J=14.14 Hz, 1 H) 3.80 (s, 3 H) 3.96 (m, 1 H) 4.04 (s, 2 H) 4.10 (dd, J=10.41, 3.58 Hz, 1 H) 4.36 (dd, J=10.41, 6.37 Hz, 1 H) 4.82 (qdd, J=6.22, 6.37, 3.58 Hz, 1 H) 6.06 (t, J=8.16 Hz, 1 H) 6.87–7.05 (m, 6 H) 7.13–7.26 (m, 3 H)
化合物292		1.37–1.69 (m, 8 H) 1.41 (d, J=6.37 Hz, 3 H) 1.71–1.98 (m, 2 H) 2.05–2.37 (m, 6 H) 3.11 (s, 3 H) 3.18–3.65 (m, 4 H) 3.44 (d, J=14.53 Hz, 1 H) 3.71 (d, J=14.53 Hz, 1 H) 3.80 (s, 3 H) 3.91 (s, 2 H) 4.02 (m, 1 H) 4.02 (dd, J=10.07, 3.57 Hz, 1 H) 4.45 (dd, J=10.07, 6.61 Hz, 1 H) 4.82 (qdd, J=6.37, 6.61, 3.57 Hz, 1 H) 6.02 (t, J=8.16 Hz, 1 H) 6.45–6.58 (m, 3 H) 6.87–7.03 (m, 2 H) 7.12–7.31 (m, 4 H)
化合物293		1.37–1.67 (m, 8 H) 1.40 (d, J=6.22 Hz, 3 H) 1.72–1.98 (m, 2 H) 2.02–2.37 (m, 6 H) 3.10 (s, 3 H) 3.21–3.64 (m, 4 H) 3.46 (d, J=14.69 Hz, 1 H) 3.70 (d, J=14.69 Hz, 1 H) 3.77 (s, 3 H) 3.96 (s, 2 H) 4.00 (m, 1 H) 4.00 (dd, J=9.95, 3.73 Hz, 1 H) 4.32 (dd, J=9.95, 6.37 Hz, 1 H) 4.79 (qdd, J=6.22, 6.37, 3.73 Hz, 1 H) 6.04 (t, J=8.32 Hz, 1 H) 6.80–7.01 (m, 6 H) 7.16–7.26 (m, 3 H)

表30－2

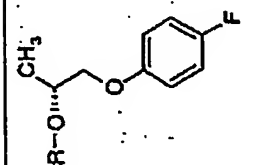
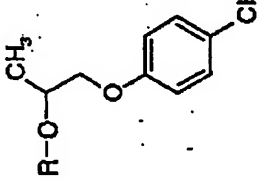
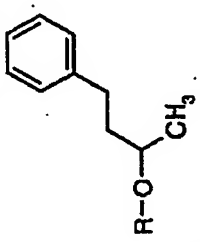
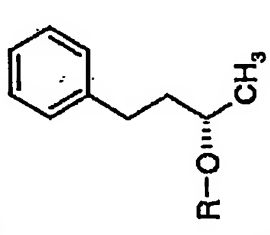
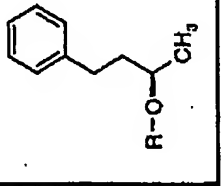
化合物294		1.38–1.65 (m, 8 H) 1.41 (d, J=6.22 Hz, 3 H) 1.74–1.98 (m, 2 H) 2.05–2.46 (m, 6 H) 3.16 (s, 3 H) 3.24–3.73 (m, 4 H) 3.47 (d, J=14.62 Hz, 1 H) 3.69 (d, J=14.62 Hz, 1 H) 3.91 (s, 2 H) 4.00 (dd, J=9.95, 3.89 Hz, 1 H) 4.06 (m, 1 H) 4.40 (dd, J=9.95, 6.45 Hz, 1 H) 4.80 (qdd, J=6.22, 6.45, 3.89 Hz, 1 H) 6.04 (t, J=8.24 Hz, 1 H) 6.86–7.04 (m, 6 H) 7.16–7.25 (m, 2 H) 7.31 (m, 1 H)
化合物295		1.38–1.65 (m, 8 H) 1.41 (d, J=6.22 Hz, 3 H) 1.74–1.98 (m, 2 H) 2.05–2.46 (m, 6 H) 3.16 (s, 3 H) 3.24–3.73 (m, 4 H) 3.47 (d, J=14.62 Hz, 1 H) 3.69 (d, J=14.62 Hz, 1 H) 3.91 (s, 2 H) 4.00 (dd, J=9.95, 3.89 Hz, 1 H) 4.06 (m, 1 H) 4.40 (dd, J=9.95, 6.45 Hz, 1 H) 4.80 (qdd, J=6.22, 6.45, 3.89 Hz, 1 H) 6.04 (t, J=8.24 Hz, 1 H) 6.86–7.04 (m, 6 H) 7.16–7.25 (m, 2 H) 7.31 (m, 1 H)
化合物296		1.45 (d, J=6.22 Hz, 3 H) 1.32–1.70 (m, 8 H) 1.70–1.97 (m, 2 H) 2.17 (s, 3 H) 1.97–2.38 (m, 6 H) 3.08 (s, 3 H) 3.18–3.64 (m, 4 H) 3.48 (d, J=14.61 Hz, 1 H) 3.69 (d, J=14.61 Hz, 1 H) 3.95 (s, 2 H) 3.98 (m, 1 H) 4.07 (dd, J=9.95, 4.04 Hz, 1 H) 4.35 (dd, J=9.95, 5.91 Hz, 1 H) 4.88 (qdd, J=6.22, 5.91, 4.04 Hz, 1 H) 6.03 (t, J=8.16 Hz, 1 H) 6.81–6.95 (m, 3 H) 7.01 (d, J=8.08 Hz, 1 H) 7.08–7.27 (m, 5 H)
化合物297		1.41 (d, J=6.22 Hz, 3 H) 1.36–1.71 (m, 8 H) 1.74–2.00 (m, 2 H) 2.00–2.39 (m, 6 H) 2.32 (s, 3 H) 3.10 (s, 3 H) 3.18–3.64 (m, 4 H) 3.46 (d, J=14.61 Hz, 1 H) 3.70 (d, J=14.61 Hz, 1 H) 3.94 (s, 2 H) 4.00 (m, 1 H) 4.02 (dd, J=9.87, 3.89 Hz, 1 H) 4.39 (dd, J=9.87, 6.37 Hz, 1 H) 4.81 (qdd, J=6.22, 6.37, 3.89 Hz, 1 H) 6.03 (t, J=8.32 Hz, 1 H) 6.70–6.81 (m, 3 H) 6.87–7.01 (m, 2 H) 7.12–7.30 (m, 4 H)

表31－1

化合物298		1.41 (d, J=6.22 Hz, 3 H) 1.37–1.69 (m, 8 H) 1.76–1.97 (m, 2 H) 2.02–2.36 (m, 6 H) 2.28 (s, 3 H) 3.09 (s, 3 H) 3.22–3.65 (m, 4 H) 3.47 (d, J=14.53 Hz, 1 H) 3.69 (d, J=14.53 Hz, 1 H) 3.96 (s, 2 H) 4.01 (m, 1 H) 4.02 (dd, J=9.94, 3.73 Hz, 1 H) 4.34 (dd, J=9.94, 6.37 Hz, 1 H) 4.80 (qdd, J=6.22, 6.37, 3.73 Hz, 1 H) 6.04 (t, J=8.24 Hz, 1 H) 6.84 (d, J=8.55 Hz, 2 H) 6.92 (td, J=7.42, 0.77 Hz, 1 H) 6.97 (dd, J=8.24, 0.77 Hz, 1 H) 7.09 (d, J=8.55 Hz, 2 H) 7.16–7.26 (m, 3 H)
化合物299		1.32 (d, J=6.06 Hz, 3 H) 1.35–1.71 (m, 8 H) 1.81–2.45 (m, 10 H) 2.74 (m, 2 H) 3.26 (s, 3 H) 3.34–3.73 (m, 4 H) 3.55 (d, J=15.39 Hz, 1 H) 3.64 (d, J=15.39 Hz, 1 H) 4.02 (s, 2 H) 4.10 (m, 1 H) 4.41 (qt, J=6.06, 5.75 Hz, 1 H) 6.07 (t, J=8.16 Hz, 1 H) 6.76 (dd, J=8.08, 0.70 Hz, 1 H) 6.87 (td, J=7.42, 0.70 Hz, 1 H) 7.09–7.31 (m, 8 H)
化合物300		1.32 (d, J=6.06 Hz, 3 H) 1.35–1.71 (m, 8 H) 1.81–2.45 (m, 10 H) 2.74 (m, 2 H) 3.26 (s, 3 H) 3.34–3.73 (m, 4 H) 3.55 (d, J=15.39 Hz, 1 H) 3.64 (d, J=15.39 Hz, 1 H) 4.02 (s, 2 H) 4.10 (m, 1 H) 4.41 (qt, J=6.06, 5.75 Hz, 1 H) 6.07 (t, J=8.16 Hz, 1 H) 6.76 (dd, J=8.08, 0.70 Hz, 1 H) 6.87 (td, J=7.42, 0.70 Hz, 1 H) 7.09–7.31 (m, 8 H)
化合物301		1.32 (d, J=6.06 Hz, 3 H) 1.35–1.71 (m, 8 H) 1.81–2.45 (m, 10 H) 2.74 (m, 2 H) 3.26 (s, 3 H) 3.34–3.73 (m, 4 H) 3.55 (d, J=15.39 Hz, 1 H) 3.64 (d, J=15.39 Hz, 1 H) 4.02 (s, 2 H) 4.10 (m, 1 H) 4.41 (qt, J=6.06, 5.75 Hz, 1 H) 6.07 (t, J=8.16 Hz, 1 H) 6.76 (dd, J=8.08, 0.70 Hz, 1 H) 6.87 (td, J=7.42, 0.70 Hz, 1 H) 7.09–7.31 (m, 8 H)

42／1

表31－2

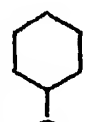
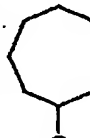
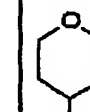
化合物302		1.37–2.09 (m, 18 H) 2.16–2.30 (m, 2 H) 2.30–2.48 (m, 4 H) 3.31 (s, 3 H) 3.54 (s, 2 H) 3.48–3.72 (m, 4 H) 4.08 (s, 2 H) 4.11 (m, 1 H) 4.80 (m, 1 H) 6.11 (t, J=8.08 Hz, 1 H) 6.82–6.90 (m, 2 H) 7.03 (m, 1 H) 7.14–7.23 (m, 2 H)
化合物303		1.22–1.70 (m, 14 H) 1.70–1.86 (m, 2 H) 1.86–2.09 (m, 4 H) 2.16–2.47 (m, 6 H) 3.31 (s, 3 H) 3.58 (s, 2 H) 3.49–3.74 (m, 4 H) 4.08 (m, 1 H) 4.10 (s, 2 H) 4.32 (m, 1 H) 6.12 (t, J=8.32 Hz, 1 H) 6.83–6.92 (m, 2 H) 6.97 (m, 1 H) 7.16–7.24 (m, 2 H)
化合物304		1.36–2.11 (m, 24 H) 2.15–2.46 (m, 6 H) 3.31 (s, 3 H) 3.55 (s, 2 H) 3.48–3.73 (m, 4 H) 4.09 (m, 1 H) 4.12 (s, 2 H) 4.47 (m, 1 H) 6.12 (t, J=8.47 Hz, 1 H) 6.78–6.92 (m, 2 H) 6.97 (m, 1 H) 7.14–7.26 (m, 2 H)
化合物305		1.35–2.47 (m, 22 H) 3.30 (s, 3 H) 3.40–4.01 (m, 6 H) 4.08 (m, 1 H) 4.13 (s, 2 H) 4.82 (m, 1 H) 5.66 (m, 1 H) 5.86 (m, 1 H) 5.95 (m, 1 H) 6.13 (t, J=8.32 Hz, 1 H) 6.82–7.30 (m, 4 H)
化合物306		1.36–1.71 (m, 8 H) 1.90–2.11 (m, 2 H) 2.14–2.47 (m, 8 H) 3.36 (s, 3 H) 3.54 (d, J=14.61 Hz, 1 H) 3.42–3.71 (m, 2 H) 3.65 (d, J=14.61 Hz, 1 H) 3.71–3.95 (m, 4 H) 3.95–4.07 (m, 2 H) 4.09 (s, 2 H) 4.14 (m, 1 H) 5.00 (m, 1 H) 6.12 (t, J=8.08 Hz, 1 H) 6.79 (dd, J=8.08, 1.01 Hz, 1 H) 6.92 (td, J=7.42, 1.01 Hz, 1 H) 7.13–7.29 (m, 3 H)
化合物307		1.37–1.69 (m, 8 H) 1.72–1.87 (m, 2 H) 1.94–2.10 (m, 4 H) 2.16–2.31 (m, 2 H) 2.31–2.56 (m, 4 H) 3.37 (s, 3 H) 3.47–3.62 (m, 4 H) 3.64 (s, 2 H) 3.69–3.82 (m, 2 H) 3.89–4.00 (m, 2 H) 4.04 (s, 2 H) 4.19 (m, 1 H) 4.55 (m, 1 H) 6.11 (t, J=8.24 Hz, 1 H) 6.81–6.95 (m, 2 H) 7.14–7.33 (m, 3 H)

表32

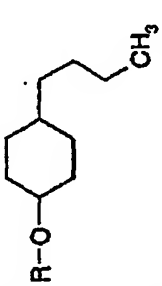
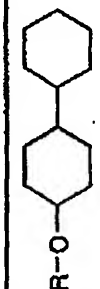
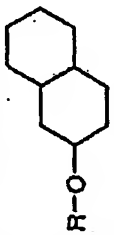
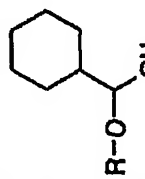
化合物308		0.89 (t, J=6.76 Hz, 3 H) 0.93–1.11 (m, 2 H) 1.11–1.75 (m, 16 H) 1.75–1.90 (m, 2 H) 1.90–2.16 (m, 5 H) 2.16–2.47 (m, 6 H) 3.30 (s, 3 H) 3.56 (s, 2 H) 3.48–3.72 (m, 4 H) 4.10 (s, 2 H) 3.98–4.26 (m, 2 H) 6.12 (t, J=8.08 Hz, 1 H) 6.80–6.92 (m, 2 H) 7.00 (m, 1 H) 7.13–7.23 (m, 2 H)
化合物309		0.85–2.46 (m, 36 H) 3.30 (s, 3 H) 3.55 (s, 2 H) 3.46–3.72 (m, 4 H) 4.10 (s, 2 H) 3.96–4.24 (m, 2 H) 6.12 (t, J=8.16 Hz, 1 H) 6.77–6.93 (m, 2 H) 6.99 (m, 1 H) 7.14–7.23 (m, 2 H)
化合物310		1.15–2.08 (m, 26 H) 2.16–2.46 (m, 6 H) 3.30 (m, 3 H) 3.47–3.73 (m, 6 H) 4.07 (m, 1 H) 4.10 (s, 2 H) 4.24 (m, 1 H) 6.13 (t, J=8.24 Hz, 1 H) 6.83–6.97 (m, 3 H) 7.16–7.24 (m, 2 H)
化合物311		0.96–1.37 (m, 4 H) 1.22 (d, J=6.22 Hz, 3 H) 1.37–2.10 (m, 17 H) 2.16–2.50 (m, 6 H) 3.31 (s, 3 H) 3.49–3.76 (m, 6 H) 4.07 (m, 1 H) 4.11 (s, 2 H) 4.21 (qd, J=6.22, 5.83 Hz, 1 H) 6.12 (t, J=8.08 Hz, 1 H) 6.79–6.96 (m, 3 H) 7.14–7.25 (m, 2 H)

表33－1

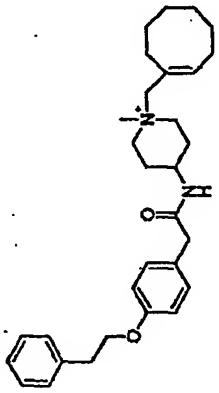
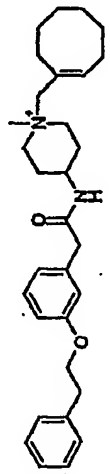
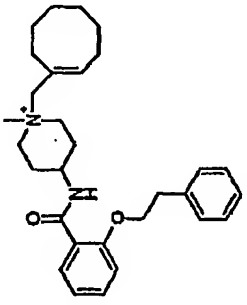
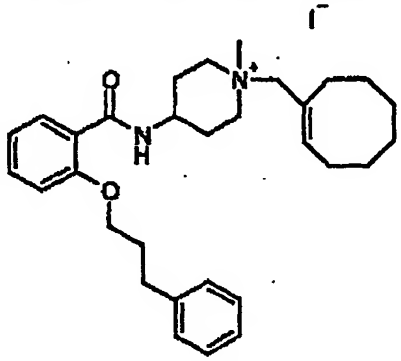
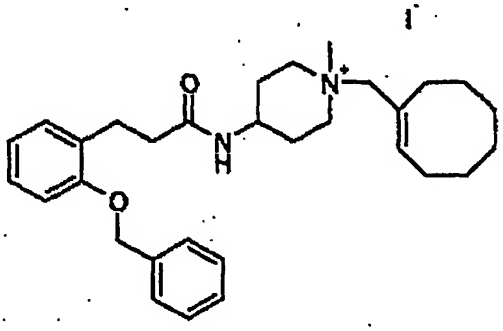
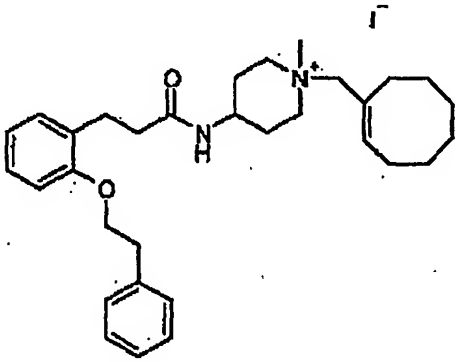
	化合物構造式	融点(℃)	1H NMR (200 MHz, CHLOROFORM-D) d ppm
化合物312		192.5–193.0	
化合物313			1.35–1.80 (m, 8 H) 1.89–2.11 (m, 2 H) 2.15–2.55 (m, 6 H) 3.07 (t, J=7.03 Hz, 2 H) 3.30 (s, 3 H) 3.24–3.56 (m, 2 H) 3.61 (s, 2 H) 3.68–3.88 (m, 2 H) 3.93 (s, 2 H) 4.17 (t, J=7.03 Hz, 2 H) 4.23 (m, 1 H) 6.07 (t, J=8.35 Hz, 1 H) 6.76 (m, 1 H) 6.90–7.02 (m, 2 H) 7.11–7.37 (m, 6 H) 7.77 (d, J=8.35 Hz, 1 H)
化合物314		104.0–107.0	

表33－2

	化合物構造式	融点(℃)
化合物315		172.0-173.0
化合物316		150.0-152.0
化合物317		149.0-150.0

試験例1　CCR3受容体結合阻害試験

モノ・ポリ分離液(大日本製薬製)にヒト末梢血を重層し、1500rpm、20分間、室

温で遠心し、多核球層を得た。この多核球層をPBS(−)で希釈し、1200rpm、5分間遠心し、沈殿した細胞を滅菌水で懸濁して溶血した。滅菌水と同量の1.8% NaCl水溶液を添加して、1200rpm、5分間遠心し、沈殿した細胞を一度PBS(−)で洗浄した。氷冷したPBS(−)／2mM EDTA／0.5% BSAに懸濁し、CD16マイクロビーズを添加して、6～12℃で30分間インキュベートした後、MACSカラムに流して、通過した細胞液を回収し、好酸球を得た。

ヒト末梢血から分離した好酸球、0.1nM [^{125}I] human Eotaxin (2000Ci/mmol、Amersham Biosciences 製) 及び被験化合物を0.1mlの50mM HEPES／5mM $MgCl_2$／1mM $CaCl_2$／0.5% BSA (pH 7.2) に懸濁し、37℃、90分間インキュベートした後、予め0.5%ポリエチレンイミン (pH 7.2) に浸しておいたグラスフィルターGF/Cにて濾過を行い、1.5mlのPBS(−)／0.5M NaCl／0.05% BSAにて洗浄した後、グラスフィルター上の放射活性を測定した。CCR3に対する結合親和性は、さまざまな濃度の化合物による[^{125}I] human Eotaxinの50%結合阻害濃度 (IC_{50}値) を算出した。

その結果、本発明の化合物は優れた効果があることがわかった。

試験例2　ラット好酸球遊走試験

Brown Norway Ratの腹腔にウマ血清を1ml投与し、48時間後に腹腔内をHBSSで洗浄して細胞を回収した。65% Percoll (Amersham Biosciences 製) 、50% Percoll、回収した腹腔内細胞の順に重層し、2500rpm、10分間遠心し、多核球層を得た。この多核球層を一度HBSSで洗浄した後、RPMI1640／1% FCSで懸濁してラット好酸球とした。96穴ケモタキシスチャンバー (ポアアイズ5μm) の下室にヒトEotaxin (100nM) 及び被験化合物を30μlのRPMI1640／1% FCSに調製し、フィルターをのせ、上室に50μlのRPMI1640／1% FCSに懸濁したラット好酸球を添加した。37℃、2時間インキュベートした後、フィルターを取り除き、下室に移動した細胞数を測定した。

ラット好酸球の遊走に対する被験化合物の作用は、ヒトEotaxin (100nM) に被験化合物を添加することによって下室への遊走の抑制率 (%) を算出した。

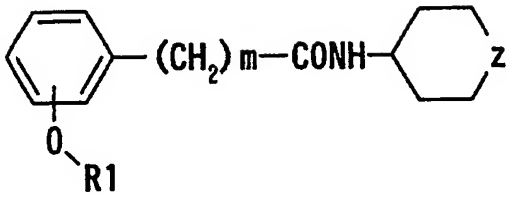
その結果、本発明の化合物は優れた効果があることがわかった。

産業上の利用可能性

本発明の化合物は、好酸球浸潤において重要な働きを担っているケモカイン受容体に対して高い親和性を有し、ケモカイン受容体の作用を阻害することにより、ヒト及び動物におけるケモカイン受容体が関わる疾患、例えば気管支喘息やアレルギー性結膜炎をはじめとするアレルギー性疾患に対する治療又は予防のために使用することができる。

請求の範囲

1．式



{式中mは1または2を示し、

R1は

・炭素原子数3～8個の直鎖状、分岐鎖状のアルキル基、

・炭素原子数3～8個の直鎖状、分岐鎖状のアルケニル基、

・炭素原子数5～8のシクロアルキル基、

・炭素原子数5～8のシクロアルケニル基、

・炭素原子数1～6のアルキル基、炭素原子数3～8のシクロアルキル基またはフェニル基で置換された炭素原子数5～8のシクロアルキル基、

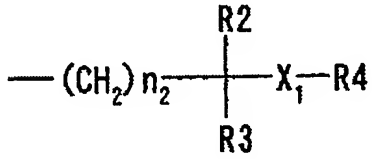
・トリフルオロブチル基、

・ペルヒドロナフチル基、

・$-CH_2-C(CH_3)=CH-Ph$ で示される基、

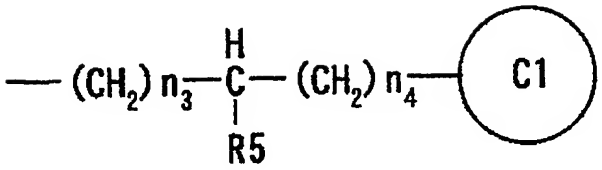
・シンナミル基

・式

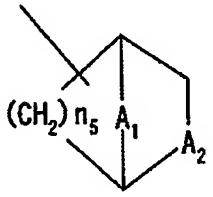


（式中、n_2は0～3の整数を示し、R2、R3はそれぞれ水素原子または炭素原子数1～3のアルキル基を示し、R4はフェニル基、ナフチル基、炭素原子数1～4の直鎖状もしくは分岐鎖状のアルキル基または炭素原子数2～4の直鎖状もしくは分岐鎖状のアルケニル基を示し、X_1は酸素原子、硫黄原子、カルボニル基またはカルボニルオキシ基を示す。）で示される基、

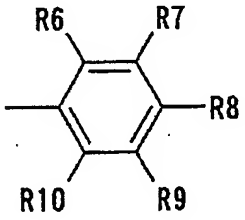
・式



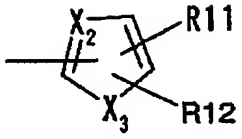
（式中n_3およびn_4はそれぞれ０～３の整数を示し、Ｒ5は水素原子、炭素原子数１～４の直鎖状もしくは分岐鎖状のアルキル基、炭素原子数２～４の直鎖状もしくは分岐鎖状のアルケニル基、炭素原子数１～６のアルコキシ基、フェニル基、ハロゲンで置換されたフェニル基、または炭素原子数３～８のシクロアルキル基を示し、環Ｃ１は「無置換または炭素原子数１～３のアルキル基で１～３個置換された炭素原子数３～８のシクロアルキル基」、「炭素原子数５～８のシクロアルケニル基」、「無置換または炭素原子数１～３のアルコキシ基で置換されたナフチル基」、「アダマンチル基」、「式



（式中、n_5は１または２を示し、A_1はメチレン基または $-C(CH_3)_2-$ で示される基を示し、A_2はメチレン基、エチレン基、ビニレン基またはメチルメチレン基を示す。）で示される基」、「式

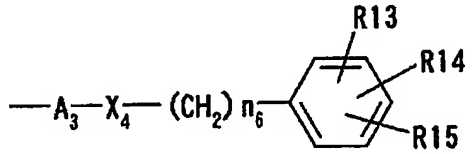


（Ｒ６～Ｒ10はそれぞれ水素原子、ハロゲン原子、炭素原子数１～６のアルキル基、炭素原子数１～５のアルコキシ基、炭素原子数１～３のアルキルチオ基、トリフルオロメチル基、トリフルオロメチルオキシ基、ベンジル基、フェネチル基、スチリル基、フェノキシ基、ベンジルオキシ基、フェニル基または炭素原子数２～４のアルコキシカルボニル基を示す。）で示される基」または「式

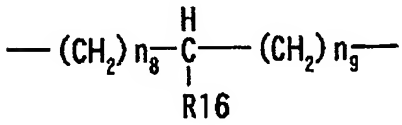


（式中、R11とR12はそれぞれ水素原子、炭素原子数１～３のアルキル基またはフェニル基を示し、X_2 は窒素原子または =CH- で示される基を示し、X_3 は酸素原子、硫黄原子または窒素原子を示す。）で示される基」で示される基、

・式

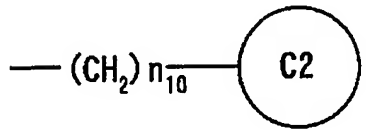


[式中、n_6 は１～３の整数を示し、X_4 は酸素原子または硫黄原子を示し、R13～R15はそれぞれ水素原子、ハロゲン原子、炭素原子数１～３のアルコキシ基または炭素原子数１～３のアルキル基を示し、A_3 は $-(CH_2)n_7-$ （式中n_7 は０～５の整数を示す。）で示される基、 $-CH_2-CH=CH-CH_2-$ で示される基または式

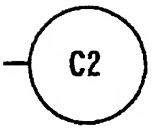


（式中、n_8、n_9 はそれぞれ０または１を示し、R16は炭素原子数１～３のアルキル基または $-CH_2-O-CH_2-Ph$ で示される基を示す。）で示される基を示す。]で示される基、

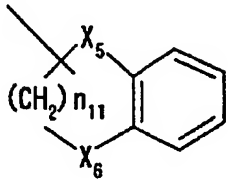
・式



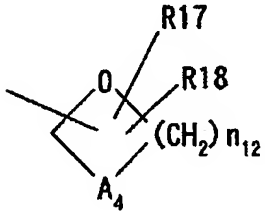
[式中、n_{10} は０～２の整数を示し、



は式

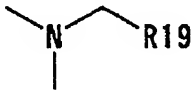


（式中、n_{11}は１または２を示し、X_5 およびX_6 はそれぞれメチレン基または酸素原子を示す。）で示される基、または式

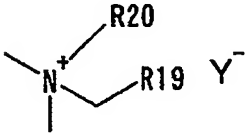


（式中、n_{12}は１～５の整数を示し、R17、R18はそれぞれ水素原子または炭素原子数１～３のアルキル基を示し、A_4 はメチレン基または酸素原子を示す。）]で示される基を示し、

Ｚは式



または式



（式中R19は炭素原子数３～１０のシクロアルキル基または炭素原子数３～１０のシクロアルケニル基を示し、R20は炭素原子数１～５のアルキル基を示し、Y^- は陰イオンを示す。）で示される基を示す。｝で表される化合物およびその医薬上許容される塩。

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP03/07379

A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl[7] C07D211/58, C07D401/12, C07D405/12, C07D409/12, C07D409/12//A61K31/452, A61K31/4523, A61K31/4525, A61K31/453, A61K31/4535, A61K31/454, A61P11/06, A61P27/14, A61P37/08, A61P43/00
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
Int.Cl[7] C07D211/58, C07D401/12, C07D405/12, C07D409/12, C07D409/12, A61K31/452, A61K31/4523, A61K31/4525, A61K31/453, A61K31/4535, A61K31/454, A61P11/06, A61P27/14, A61P37/08, A61P43/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
REGISTRY(STN), CAPLUS(STN), CAOLD(STN)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 01/14333 A1 (ASTRAZENECA UK LTD.), 01 March, 2001 (01.03.01), Full text & JP 2003-507456 A & EP 1212299 A1	1
Y	EP 1201239 A1 (TEIJIN LTD.), 02 May, 2002 (02.05.02), Claim 1; refer to definitions of R^1 & WO 01/10439 A1 & AU 200063193 A & KR 2002015722 A & CN 1376063 A	1

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier document but published on or after the international filing date
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"P" document published prior to the international filing date but later than the priority date claimed
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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
11 August, 2003 (11.08.03)	26 August, 2003 (26.08.03)
Name and mailing address of the ISA/ Japanese Patent Office	Authorized officer
Facsimile No.	Telephone No.

Form PCT/ISA/210 (second sheet) (July 1998)

国際調査報告

国際出願番号 PCT／JP03／07379

A. 発明の属する分野の分類（国際特許分類（IPC））
Int.Cl⁷ C07D211/58, C07D401/12, C07D405/12, C07D409/12, C07D413/12 // A61K31/452, A61K31/4523, A61K31/4525, A61K31/453, A61K31/4535, A61K31/454, A61P11/06, A61P27/14, A61P37/08, A61P43/00

B. 調査を行った分野
調査を行った最小限資料（国際特許分類（IPC））
Int.Cl⁷ C07D211/58, C07D401/12, C07D405/12, C07D409/12, C07D413/12, A61K31/452, A61K31/4523, A61K31/4525, A61K31/453, A61K31/4535, A61K31/454, A61P11/06, A61P27/14, A61P37/08, A61P43/00

最小限資料以外の資料で調査を行った分野に含まれるもの

国際調査で使用した電子データベース（データベースの名称、調査に使用した用語）
REGISTRY (STN), CAPLUS (STN), CAOLD (STN)

C. 関連すると認められる文献

引用文献のカテゴリー＊	引用文献名 及び一部の箇所が関連するときは、その関連する箇所の表示	関連する請求の範囲の番号
Y	WO 01/14333 A1 (ASTRAZENECA UK LIMITED) 2001.03.01 全文参照 & JP 2003-507456 A & EP 1212299 A1	1
Y	EP 1201239 A1 (TEIJIN LIMITED) 2002.05.02 Claim 1、R¹の定義参照 & WO 01/10439 A1 & AU 200063193 A & KR 2002015722 A & CN 1376063 A	1

☐ C欄の続きにも文献が列挙されている。　☐ パテントファミリーに関する別紙を参照。

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「&」同一パテントファミリー文献

国際調査を完了した日 11.08.03	国際調査報告の発送日 26.08.03
国際調査機関の名称及びあて先 日本国特許庁（ISA／JP） 郵便番号100－8915 東京都千代田区霞が関三丁目4番3号	特許庁審査官（権限のある職員） 中木 亜希　印 4P 9282 電話番号 03－3581－1101 内線 3492

様式PCT／ISA／210（第2ページ）（1998年7月）

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